

RHYTHM IN DESIGN; OR, THE ANALYSIS AND APPLICATION OF HARMONIC FORM.*

By F. BLIGH BOND [F.].

THE power of perceiving beauty in line or contour is one that we all possess in varying degrees, and our instincts readily tell us when any form possesses the attribute of beauty. But as the faculties of which we make use in perceiving beauty are unconsciously or instinctively applied, the laws and principles which govern beauty in form do not so readily appear. Through a want of unanimity or consistency on the theoretical side of the subject, much confusion has been created, and the underlying principles have remained obscure. They have not, in fact, become matters of exact knowledge to the general world.

We are well used to the controversies and wranglings which are for ever going on in artistic circles as to the relative fitness of various orders of form in decoration; and we have seen the ideas of one school of design after another alternately prevailing, and an action and reaction of public taste taking place, leading to the adoption of successive fashions in general design, all of which to the careful observer are marked in their earlier stages by a certain leavening of inspiration, and in their decay by the grotesque exaggeration of type, and the loss of that sense of proportion which should control and restrain the leading motive now carried to excess. Such fashions have been manifold, as the leading principles of form can blend in infinite variety, and produce many distinct parent types to form the backbone of styles; but, speaking broadly, we may say that all forms and styles group themselves under two well-contrasted heads—the Curvilinear and the Rectilinear. The Curvilinear represents dynamic force, vitality, and movement; the Rectilinear symbolises static conditions, rest, and stillness.

It must be conceded that both these original types of form contain elements necessary to good design; yet both, as I hope to show, are, if used singly, unfertile in those rhythmic or harmonic qualities which alone are truly satisfying to the artistic sense, and are therefore only capable of yielding temporary pleasure as a reaction from a surfeit of the opposite fashion. I shall endeavour to show, on the one hand, that no absolutely rectilinear arrangement can possibly find place in a truly harmonic system of design; and to make clear, on the other hand, the reasons why no such aggregation of extreme curvilinear forms as the later Renaissance yielded in the hands of some of its exponents can ever hope to satisfy. The theory which I will presently advance of the true nature of harmony and abstract beauty in form is one which, though based upon the intermingling of rectilinear with curvilinear forms, and thus, in effect, retaining the best decorative qualities of both systems, yet in strict theory renounces the former in its absolute development or extreme type.

It will be necessary to the full illustration of my subject that I should draw some parallels between harmony in its optical aspect, or rhythm in form, and its counterpart in music: though I must first briefly remind you of the difficulty always confronting us in any attempt

* The substance of this essay was comprised in a Paper read before the Bristol Society of Architects in January 1899; but it has since been to a great extent re-written.

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to draw such a parallel—namely, that in the case of musical effects the perception of an harmonic progression is a sequence in time, whereas the kindred perception of form-harmonies is an instantaneous or simultaneous apprehension of many such progressions. Yet the analogy is far from fanciful; indeed, as I hope to show, it is a very real and vital one.

Essentially the difference lies in the fact that our perception of harmony in form has reached a higher plane than that on which we enjoy the harmony of sound. It is said, however, of some highly gifted musicians, and is, I believe, quite true of some of the great composers, that they could apprehend a sequence of musical harmonies as a simultaneous presentment—a sort of musical picture—and that the whole length of some grand symphony might, in moments of inspiration, be equally present with them, the sense of time being lost or transcended. This must be a grand experience; but the necessity of interpreting piecemeal their beautiful conceptions, and the rendering of them note by note as a sequence, in order to record them, must seem almost a degradation. But if the great majority of us have not this wonderful power of contemplating the finished result of a long sequence of ear-harmonies, let us at least try to realise that we have in our sense of visible beauty a power of precisely analogous description, based upon the same principles, and equally capable, under proper culture, of yielding us the most profound delight. The eye builds up line by line, as the ear builds note by note, a form, a phrase, a melody. The ear reaps its satisfaction by going over its favourite sequence of notes, in a steadily-timed progression, catching the general purport of the melody in a more or less partial and fugitive manner, and so little continent of the organism of the melody that it can carry but a small part at a time. The eye, however, having traversed the harmonic line built under its guidance, can pause to grasp the whole, and with deep satisfaction absorb the general idea which all the mutually interdependent parts combine to present. So complete is the idea of the *total* of a visible harmony that the progressive stages are lost, and with them vanishes the idea that what we are looking at and contemplating as a beautiful outline is in reality the sum-total of a series of progressions or movements, acting and reacting on one another until the figure is completed.

Further on I shall enter more fully into the connection between form and motion, and demonstrate the truth of the proposition that a line or curve is the formal representation of a movement or energy in a given direction. Before proceeding to this, however, I wish to draw a clear distinction between beauty of form in the abstract (which is the subject of my present remarks) and beauty of expression in the more definite and concrete form. In the one case, as in a simple arrangement of curves, no definite idea or meaning is conveyed, whilst in the other (as in statuary or symbolic carving) some tangible idea is worked out, having some human interest or relationship, and capable of verbal elucidation or exact description. This double nature, these two elements of beauty, co-exist in all works of art. There is the inner soul or aim of the work, which is the poetry of the thing, and there is the rhythmic garb or dressing, which, if skilfully woven, can so powerfully appeal to the emotional or sensuous part of the perceptions, as to throw a subtle glamour over the whole, and lift the beholder to a better understanding of the central idea conveyed.

The old prejudice which clothes poetic thoughts with rhythmic verse has its roots deep in our complex nature, and we cannot violently dissociate the two. It is the same thing with vocal or descriptive music, where the vague feelings stirred by the melody or rhythm serve to enhance and to give reality to the romance interwoven with the music. Reverting, then, to design, I hope my meaning has been made clear, that harmony or rhythm in design must be expressly dissociated from the poetry of architecture, and, in considering it, it is necessary to dismiss from one's mind any reference to formal representations of human or animal life, save perhaps of outlines of the broadest conventional order, possessing no individuality.

I will now enter properly on my theme, starting with this definite and all-important contention as the groundwork of the whole—namely, that there exists in the human mind a power of perceiving harmonic ratio in line, and interpreting it as beauty, precisely as it interprets the effects of harmonic vibrations in sound (as music) and in rhythmic motions; and that it is this power which, consciously or otherwise, lies at the root of all our perceptions of abstract beauty in line and form, and of the sensations of pleasure which may be derived from contemplating it. The existence of such a power may be doubted by some, and no doubt the suggestion may be repugnant to many others, who would prefer to believe that no mechanical laws can bind their sense of the beautiful, which they would regard as belonging to a domain higher than any exact science could carry us, and perhaps an endeavour to lay down such rules would seem to them almost like sacrilege—a degradation of ideal things to a commonplace or materialistic level. The reality, to my view, would be the very contrary, and if, by any effort of mine, I could lift this subject ever so little out of the hazy and chaotic condition it is in at present, and show, beyond all possibility of disproof, that the same fixed and immutable principles underlie our perception of harmony or rhythm in form as in music, I should feel I had helped to lay the foundation for a future appreciation and enjoyment of rhythm in design of a conscious, intelligent, and reasonable character.

I wish to emphasise, by a further allusion to music, my answer to those whose sense of the ideal freedom of artistic design would take alarm at the idea of any mechanical or fixed law obtruding itself into their Elysium. I would ask them to consider whether, if such a law be demonstrated, it need after all involve any restriction or degradation of their ideal freedom of design. Would it not rather furnish them with an intelligible and secure basis on which to raise their work, and give them a test of the correctness of their instincts in interpreting beauty in form? Has the art of music suffered at all from the discovery or application of the physical laws on which musical harmony is founded? Certainly not. The best composers distinctly owe their success in finding expression for their ideas, and thus in producing lasting work, to that ability to translate and interpret the dreams of their genius which is given them by a sound education in the grammar and machinery of harmony.

There have been many schools of musicians, and their respective teachings have no doubt varied within wide limits, but I venture to assert that they would all be in agreement on the necessity of a complete grasp of musical theory, harmony, thorough-bass, and counterpoint, and also a knowledge of the physical side of music, of the relationship and nature of different vibrations, before a pupil could expect to become a master, or venture to launch his compositions before a critical musical world.

Why have we no such grammar, no such system of harmony in design, when the perception of harmony in form and discord in form is equally with us, and equally intense in some of us, and, as I verily believe, only awaits systematic education to emerge from the unconscious to the conscious stage? Surely this is a matter for surprise.

There is a broad and marvellous field of delicate and subtle perceptions lying open to us, inviting our investigation, offering rewards of great delight, and how many among us have eyes to see what is there? I fear many of us are gazing into it through the medium of empirical ideas and the distorted views of quack designers. We hear, and heed too much, the sentimental vapourings of artists and art critics, and of all those who, having approached the subject of design from its emotional or poetic side, have discerned no system, or at best only the scattered fragments of one. Are such to be our guides towards a rational understanding of harmony in form? Is this chaos to last?

Multitudes of books are written on the subject of beauty in design, but, so far as my experience goes, they generally lead one into a maze of bewilderment, and are very disappointing.

People make frantic efforts to express in terms the emotional value of certain works, and get terribly involved through their inability to dissociate those elements which are capable of verbal expression from those which, like the emotional value of rhythm in form, sound, or motion, lie beyond the province of words altogether. Tedious platitudes, cant phraseology, sentimental gush, flabby and invertebrate theory—these are some of the results of trying to convey in words the æsthetic value of these natural harmonies, and to infuse into them higher meanings which they do not in themselves possess—though they are the invaluable handmaids of the higher and more intellectual conceptions. They are not poetry, but are the almost indispensable adjunct to poetry. They are music, and underlying them is a science whose laws may be expressed in correct terms, and interpreted to students in the English language, without mystery or obscurity. If the artist or architect could but learn a coherent system of music in form how vastly would he, and the public for whom he caters, be the gainers, by the increased certainty and lucidity of his work, and the strength and delicacy of his interpretations, and he personally, in the power and delight which his knowledge would then afford him of creating things of beauty.

I have stated that I consider the perception of harmonic ratio in form to be a power latent in us all, though undeveloped, and I think the truth of the proposition can be easily established by reference to some of the simpler harmonic forms, in which the instinctive recognition of harmonic quality and mathematical correctness is developed in most of us to a great degree of refinement, so much so that we are able to recognise the very slightest visible deviations from the perfect form. I refer to the circle and the ellipse. What is true of these simple forms is equally true of the more complex, because these are of essentially the same nature, and we can easily educate our perceptions to be sensible of an error in a complex curve, by care and attention. The power is capable of development to any extent, and only needs systematic cultivation, whilst its increasing refinement and delicacy of operation yields a proportionate degree of pleasure and satisfaction, undreamed of by those who have not studied the subject. We ought in the future to be the possessors of a large number of new perceptions of great delicacy and exactness, and to feel and be stirred by music in form as we now feel it in sound. We ought to be able to discern and reject at a glance, as discord, any deviation from harmonic laws or incongruous or unsuitable juxtaposition of different orders of form, just as in music we not only take care to observe the laws of harmony, but also take pains that in the orchestration of a piece, the "timbre" of the sound given by the different instruments is properly apportioned and blended, and also that the performance is not marred by the introduction of incongruous movements, such as would present a contradiction in mood or feeling.

Our sense of harmonic correctness in line will, I believe, become capable, after education, of being applied with so great an exactness that almost a hair's breadth deviation will appear to us as an unsightly crippling of the perfect form.* The truth of this proposition may be made familiar by some means of systematic experiment, such as are offered us by the various kinds of harmonographs for the transcribing of musical or acoustic curves, or the resultants of compound pendulum vibrations. These most interesting and instructive little machines are not nearly so well known as they deserve to be, but with their aid I have sought, and have found, a perfect correspondence between mathematical correctness and æsthetic value, in all the forms which have come under my notice; and having tested the effects of some thousands

* I am informed by a friend who has considerable knowledge of India, and experience of native workmen, that the trained castes of designers who produce that truly harmonic and mathematically perfect work in inlaid marble or wood, which delights the whole artistic world,

are not in the habit of using any mechanical or mathematical appliances for the working out of their rich designs, but prefer to trust to the safe guidance of their marvellously developed instinct.

of these lines upon my own perceptions, I have fully satisfied myself not only that in our recognitions of abstract beauty we are fully under the dominion of those permanent mathematical principles of ratio which rule in the physical domain, but that these principles, in their application, might be to a large extent classified and formulated for the use of the designer, and a grammar of harmony constructed.

The most lamentable result of the want of training of the harmonic sense is that we are by no means so sensitive as we should be about the employment of crude and makeshift forms, and our natural delicacy of perception has been blunted by the adherence to false rules and unworthy models, whose sole merit has, in many cases, been their antiquity.

What perceptions of form Nature has educated us into by inviting us to observe the growth of herb or limb, we have to a great extent corrupted by the blending of natural or harmonic forms with those of a geometrical or hard mechanical sort, in ways utterly unnatural and utterly preposterous, until now many of us do not know a good line from a bad one. There is, of course, speaking of geometrical forms, always an exception to be made where architects are concerned, for building conveniences demand a certain squareness and angularity of outline; but I contend that a skilful architect, knowing his grammar of harmony, would never be mastered by such conveniences, but, whilst duly respecting them as necessary conditions, would always, in his designs, rise superior to them, and make them subservient to his harmonic scheme, when they would be traceable only as basic forms, lending stability and repose, but whose nakedness is draped by the skilful hand of the designer, so that their severity is lost, whilst their vigour is retained.

I have now reached a point at which I must try to clearly define rhythm. I will try to formulate (1) its nature, (2) its application to design.

- (1) Rhythm is the effect of natural motion or motions having periods bearing a definite ratio to one another, acting in a given direction, and combining to form an harmonic sequence or series of movements.
- (2) Rhythm in design is the art of registering and applying or adapting the forms created by the interaction of these natural motions in their various phases; the sequence of their relationship being thus tabulated as a *curve*, so that the eye may simultaneously grasp and understand the whole period of the movement, such curves forming the basis upon which a complex design may be built up.

From the foregoing we deduce the following:—

- (a) Every line is a progression, and should be viewed as such in order to be truly understood.
- (b) Every true line, except the absolutely straight line, is an harmonic progression, and pictures the operation of a force or forces. In its dynamic nature lies its vitality, and its artistic character is directly dependent upon its correct representation of force.

I will also add:—

- (c) Every complex line or curve possessing the above nature has the attribute of beauty, the eye perceiving the consistency of the law governing it.
- (d) The arbitrary juxtaposition of curves following different laws, or not containing the same harmonic elements, is inferior in beauty and in force or vitality, the eye detecting as discord the divergence in principle.


I could illustrate by abundant examples both these latter rules which I have postulated. But a few considerations, by way of illustration, are all that will be necessary for the present, and I think both principles will be found easy of application if a little study be given to them. Let me ask you to make a collection of all kinds of harmonic curves, and study them intelligently, tracing the direction of the forces of which they are the resultants, and you will soon

begin to acquire what I may style the "dynamic sense," which is really a more intelligent development of the "harmonic sense," by which we instinctively perceive beauty. The application of these to design will become easier and more certain. Especially in designing wrought-iron scroll-work will the process be found beneficial.

But before studying complex curves, there is much to be learned from the careful consideration of the simplest harmonic forms: the circle, ellipse, spiral, and parabola. Of any of these, we seem to be licensed, by our intuitive sense of what is proper, to take parts only for use in architectural and general design, or, if desired, to put two similar segments of the same curve in opposition, as in pointed arches, foiled circles, ogees, &c. What we are *not* entitled to do is to produce a mongrel curve, simulating a complex harmonic curve, by joining together, end to end, portions of simple or circular curves. This is an important rule, generally disobeyed, especially in late Gothic or Renaissance designs. The instinct of designers would seem to have been sadly blunted, or to have gone much astray, when they could be satisfied with such mongrel or crippled curves as these very generally are.

Let my rule be applied, for instance, to that most hideous of curves, the so-called "three-centred ellipse." This curve is without consistency, following no uniform law, and therefore destitute of dynamic vigour. Its effect on the really sensitive eye is quite painful, yet it passes muster frequently among latter-day architects.

In respect of the more subtle and sophisticated "five-centred ellipse," most of us have not our harmonic sense sufficiently attuned to feel its harshness. In the same bad category I must place the Tudor four-centred arch, and all those ogees which are compounded of circular curves of varying radius.

Neither is the combination of two segments of the same circle in contrary flexure a satisfactory one . It is far from being so pleasing as Hogarth's line of beauty, which follows a uniform harmonic law from end to end—that is, it represents the whole period of a certain complex vibration.

Not to unduly multiply instances, I will content myself with mentioning one of the worst transgressions of all—namely, the junction of the circle and the straight line. Frequently one sees what is called a flat arch—that is, having horizontal voussoirs, and to this is given rounded corners. The form may have conveniences, as all straight lines are convenient—too convenient, alas!—for builders, but where is the excuse? A very slight alteration would restore to the line an harmonic quality. The Burgundian architect effected this by the very appropriate use of a counter curve in the centre, almost annulling the straightness of the remnant of the line.

I must now revert to the basic or geometrical forms, which are founded on the straight line. Architects can never ignore these. It is impossible, and it is not desirable, that we should get quite away from them. Architectural construction, which is dependent on equilibrium, can never violate the laws of stability in the mass, and therefore squares, levels, and perpendiculars will form the framework of building for all time. But if architectural with general design is to be regarded as the expression of living forces, as may be inferred from the rules I have laid down, then it becomes a question how we are to confront and deal with those basic elements of straightness and rigidity which are in themselves dead, and devoid of rhythmic energy, and are, as one might say, the skeleton within the living flesh.

Straight lines in their absolute nakedness are expressive only of passive stillness and monotony. An ornamental arrangement of straight lines only can never satisfy, though under certain conditions it may please, but you will most assuredly find that the pleasure to be

derived from straight lines is not a positive pleasure at all, but at best an agreeable feeling of reaction experienced by way of contrast after the eye has had an overdose of luxuriant curvature. The use of the dead square line should, I think, be reserved by future designers for tombs, mausolea, and such-like temples of death, as an emblem of eternal stillness and inflexible destiny.

Nature gives us no argument for the use of the absolute straight line, as no natural line is really straight, but, from some point of view or other, will be found to possess subtle curves. Her lowest order of forms—the crystalline—produced by the action of simple molecular forces, is constructed, it is true, upon a geometrical basis; but they all present, in the natural state, certain irregularities of outline, which redeem them in the mass from absolute monotony.

In the vegetable kingdom the rhythmic expression of the living forces of growth and expansion comes into fuller play, and the characteristic outlines indicative of the vital forces peculiar to each herb become more complex and beautiful as we ascend the scale of evolution. In the infinitely varied outlines of growing things we detect a harmonious working out of two forces—the alternation of *development* and *restraint*, or the lines of interaction between energies of opposite tendency, giving us a variety which can never stale.

All these forces, together with the pendent curves produced by gravity, and the perception of continuity of structure, are translated by the inner perceptive faculty as harmony, and conveyed to the inner sense as beauty.

Reverting for a while to what I said concerning the use of square lines in design, and the inharmonious result of a mere mixture of straight lines with curved ones, I cannot of course be supposed for a moment to advocate a wholesale departure from straight lines in design, nor do I. But there are two ways of using them, having markedly different optical results. If used unskillfully in, let us say, an architectural design, the straight line will assert itself among countless other features very clearly, and its native harshness will not be disguised; and why?—because it is not combined or interwoven with lines of other tendency, so as to suggest to the eye any more harmonious line formed by the sum total of all the features. It is all the difference between a mechanical mixture of two different elements, and their chemical combination. But it is possible, and easy enough if proper care be given, so to regulate your smaller features in a design that they may form a series of points upon a general “line of suggestion,” the effect of which upon the eye will be sufficiently obvious to withdraw attention from the rectilinear backbone, and the severity will disappear. The minor features yielding the chosen “line of suggestion” must be of sufficient size and frequency to form a well-marked series, but they need not *in themselves* take any particular shapes so long as they are of the right projection. Their individual shape does not count in the total effect, except in a secondary manner. In one direction only, the horizontal, does the unadulterated straight line appear to be correct and satisfying, and the reason for this appears to be that the straight line is expressive of constant or uniform motion, which is a kind of motion only natural in a horizontal direction.

Vertically all propulsions of force are subject to the laws of gravity, causing progressive retardation in rising, and acceleration in falling, yielding more or less parabolic figures, and I feel quite clear that, unconscious though we may be of the existence and requirements of our “dynamic sense,” it is always urging us most strongly to obey these laws in design.

I feel I ought to make one exception, in favour of the use of the vertical straight line in a limited manner, and that would be when it is used in the formation of a pendent. In such a feature my rules would permit of its use, as it there symbolises a constant force acting vertically downwards.

I now wish to speak briefly on the subject of the simplest and most elementary of harmonic lines—the circle. This beautiful figure expresses either of two sorts of motion, and can be built up from each. It is formed:

- (1) By the motion of a point at a uniform distance about a centre.
- (2) By two rectilinear motions of equal period and extent, acting upon the same point at right angles to one another, and alternating in time.

The circle, or sphere, is the simplest of natural forms, and very close and perfect approximations to it are found in organic nature. But though it is the parent of all other graceful forms, it is not fitted for indiscriminate use in design, on account of two characteristics:

- (1) In general design, because of its monotony.
- (2) In architecture, because it is not a form subject to the laws of stable equilibrium.

The latter objection applies, of course, only to spherical or circular *masses*, not to circular spaces, as these, having no weight, cannot offend the law of equilibrium.

Parts of circles, or parts of spheres, are, however, a matter of everyday use and convenience, and, were it not for their extreme and sometimes painful monotony, might be considered the most essentially useful element in architectural design. The ease with which purely circular forms may be struck, as distinguished from the more complex harmonic sweeps and curves, tends to make them permanently popular, and long custom has rendered them traditionally correct.

We have next to consider the elliptical form, which is directly derived from the circle, as the circle yields the ellipse when viewed in perspective. Here we have a really rhythmic form, and the trained eye traces with interest, as well as with delight, the interaction of the two forces which produce it: the vertical, which is retarded or lessened by insensible gradations as the crown of the curve is reached; and the lateral, which is correspondingly accelerated or increased. Every part of a true ellipse is musical in form, just as its counterfeit (of compound circular origin) is harsh and discordant.

It is a wholesome sign of the progress of refined sensibility amongst modern architects, that they are beginning more generally to appreciate the beauty of true elliptical forms, and to make use of them.

In the same category as the ellipse I will place the parabola, which is of kindred nature, though an open curve, and is one which may be used in its entirety in architectural work (as, *e.g.*, in forming a "line of suggestion" for the general skyline or contour of a group of buildings, or large building with numerous salient features) in entire accordance with the laws of stability and equilibrium.

The parabola is the product of various combinations of natural forces, but for our purposes may be regarded as the resultant of two simple vibratory motions—the horizontal one having exactly twice the period of the vertical one. It is a curve which is most delightful to the eye, and thoroughly well fitted for application to architectural design, especially in roofs and skylines.*

From the parabola, it is an easy step to the more complex harmonic lines which are the resultants of two or more forces of other ratios than 2 : 1 acting upon one another at right angles, and with varying amplitude. In some of these now in my possession, executed by the mechanical means already suggested, or by the simple mathematical process of plotting the curves on squared paper, the effect is almost magically beautiful—the most characteristic being those in which, upon the basic form of the ellipse, parabola, or lemniscate, there are

* The chief source of that extreme sense of refinement conveyed by Oriental architecture is the general use of parabolic or cycloidal curves in preference to circular ones.

grafted subtle variations produced by the presence of higher harmonics in a subordinate degree—precisely analogous to those strictly subordinated harmonics which in musical instruments yield such varying “timbre” with the same basal note, and which give to the different instruments diverse tones—hard, soft, liquid, mellow, metallic or brazen, full, thin, rich, reedy, &c. All these have their counterparts, more or less recognisable, in the character of lines. It is a fact well known to science that each of these qualities in a musical instrument is the direct result of a particular selection of certain harmonics in certain degrees of strength, accompanying the fundamental note; and so far-reaching is the law that it controls even the formation of vowels and consonants, which have all been successfully imitated by the incorporation of their proper harmonics.

In the same way, by skilfully blending and applying the harmonic principle to lines, we can give them an expression of force or feebleness, richness, wiriness, rigidity, flexibility, grace, sternness, and what not; but to be able to do this with certainty and clearness of expression, we should have a conscious knowledge of the laws which we are calling into operation.

Having indicated that the character and artistic value of a line is the outcome of harmonic elements properly selected and applied, I now come to speak of what we call “conventional” design or ornament.

Conventional representations of any well-known class of forms is *merely the arbitrary choice of those harmonic principles in a form which gives it its distinctive character, or “timbre,” or, if I may so term it, “flavour.”* In all natural forms there are essential characteristics which are the result of the working of special harmonic principles, besides a great many variations of a more intricate kind which are the outcome of accident or circumstance. It is the business of the conventional designer to select the one, and to discard the other; and this sorting or weeding-out of the essential from the non-essential preserves, as it were, the soul of the form, whilst rejecting its material part.

Conventional representation (like time, tune, and orchestration in music) is therefore an orderly classification which conveys to the æsthetic sense a clear, select, and definite impression easily understood at a glance. If then, as we have seen, our appreciation of the simpler harmonic forms as found in the vegetable world depends to a very large extent upon our conception of the growth, movement, and special vital characteristics of the different orders of plants, then, in a similar way, our appreciation of beauty in the higher forms of man and animals depends upon our knowledge of, and our ability to understand, the various powers and capacities of movement which the position and sizes of the muscles, or the proportions of limbs and trunk, denote. But with animal and human types, architectural art has little or nothing to do in its structural portions, as it is an art expressive of fixity in position, whilst these forms are entirely expressive of, and characteristic of, locomotion. There are, therefore, very few instances in which the incorporation of the human form as an architectural feature can be regarded as even a qualified success. Those great sitting giants forming the façade of the rock temple of Abu Simbel in Egypt are, to my mind, about the most legitimate, or least unsuitable, instances of its application. From their stupendous size and massive breadth of treatment, as also from their resting posture, they have a certain appropriateness inspiring a sense of repose, stability, and permanence, and thus seem to satisfy that sense in us which looks beyond the material or concrete expression, and, as I have endeavoured to show, sees in the humblest line a symbol of those eternal vitalities which throb ceaselessly throughout the visible world, and whose music is intuitively felt by us, although we have not yet arrived at the full and conscious recognition of it in all its manifold presentments.



9, CONDUIT STREET, LONDON, W., 17th June 1899.

CHRONICLE.

THE ANNUAL ELECTIONS.

The Council.

At the Meeting of Monday the 12th inst., the Council for the year of office 1899-1900 were declared duly elected as follows:—

PRESIDENT.—William Emerson.

VICE-PRESIDENTS.—John McKean Brydon; William Milner Fawcett, M.A. Cantab., F.S.A.; Henry Louis Florence; Edward Augustus Gruning.

HON. SECRETARY.—Alexander Graham, F.S.A.

MEMBERS OF COUNCIL.—Frank Thomas Baggallay; Thomas Blasbill; James Brooks; John James Burnet, A.R.S.A. (Glasgow); William Douglas Caröe, M.A. Cantab., F.S.A.; Thomas Edward Colleutt; John Alfred Gotch, F.S.A. (Kettering); Edwin Thomas Hall; Henry Thomas Hare; Edward William Mountford; Beresford Pite; John Slater, B.A. Lond.; Richard Phenè Spiers, F.S.A.; Henry Heathcote Statham; Leonard Stokes; Sir John Taylor, K.C.B.; Paul Waterhouse, M.A. Oxon.; Aston Webb, A.R.A., F.S.A.

ASSOCIATE MEMBERS OF COUNCIL.—James Sivewright Gibson; Henry Vaughan Lanchester.

REPRESENTATIVES OF ALLIED SOCIETIES.—David Barclay (Glasgow Institute of Architects); Robert Isaac Bennett (Manchester Society of Architects); James Crocker (Devon and Exeter Architectural Society); Thomas Drew, R.H.A. (Royal Institute of the Architects of Ireland); Robert Evans (Nottingham Architectural Society); Charles Busted Fowler (Cardiff, South Wales, and Monmouthshire Architects' Society); William Glover (Northern Architectural Association); Albert Edwin Sawday (Leicester and Leicestershire Society of Architects); Joseph Smith (Sheffield Society of Architects).

REPRESENTATIVE OF THE ARCHITECTURAL ASSOCIATION (London).—George Halford Fellowes Pryne.

The Standing Committees.

At the same Meeting the following members were declared duly elected to serve on the Standing Committees for the ensuing year of office:—

ART STANDING COMMITTEE.

Fellows.—John Macvicar Anderson, F.R.S.E.; James Brooks; John McKean Brydon; William Douglas Caröe, M.A., F.S.A.; Ernest George; Henry Thomas Hare; Edward William Mountford; Henry Heathcote Statham; Alfred Waterhouse, R.A., LL.D.; William Young.

Associates.—Robert Shekleton Balfour; James Sivewright Gibson; Henry Vaughan Lanchester; Andrew Noble Prentice; William Henry Romaine-Walker; John William Simpson.

LITERATURE STANDING COMMITTEE.

Fellows.—John Bilson; Henry Louis Florence; Alexander Graham, F.S.A.; Benjamin Ingelow; John Tavenor Perry; William Alfred Pite; Sydney Smirke; Richard Phenè Spiers, F.S.A.; Henry Heathcote Statham; Paul Waterhouse, M.A. Oxon.

Associates.—Arthur Smyth Flower, M.A. Oxon. F.S.A.; John Humphreys Jones, B.A. Lond.; Andrew Noble Prentice; Ravenscroft Elsey Smith; Leslie Waterhouse, M.A. Cantab.; Percy Scott Worthington, M.A. Oxon.

PRACTICE STANDING COMMITTEE.

Fellows.—Thomas Batterbury; Samuel Flint Clarkson; Thomas Harris; George Hubbard; Alexander Henry Kersey; Joseph Douglass Mathews; Walter Hilton Nash; Beresford Pite; James Osborne Smith; Edmund Woodthorpe, M.A. Oxon.

Associates.—William H. Atkin-Berry; Charles Henry Brodie; Herbert Hardwicke Langston; Sydney Perks; Augustus William Tanner; William Henry White.

SCIENCE STANDING COMMITTEE.

Fellows.—Lewis Angell, M.Inst.C.E.; Delissa Joseph; Hampden William Pratt; John Salmon Quilter; Herbert Duncan Searles-Wood; Percival Gordon Smith; Alfred Saxon Snell; Lewis Solomon; William Charles Street; Benjamin Tabberer.

Associates.—Sydney Benjamin Beale; Henry William Burrows; Max Clarke; Bernard John Dicksee; Matthew Garbutt, Assoc.-M.Inst.C.E.; Charles Henman.

The Hon. Auditors for the past official year, Messrs. Zeph. King and Frederick William Marks, were declared re-elected for the ensuing year.

Election Procedure: Proposed Changes in the By-laws.

THE CHAIRMAN (MR. JOHN SLATER, B.A.) of the General Meeting of the Institute last Monday announced that the Council had had under consideration the qualifications of Associate Members of Council, and had decided, with a view to giving more scope to the body of Associates in the matter of their representation on the Council, to recommend to the General Body (1) that the

second sentence in By-law 29 be altered so as to read "any Associate shall be eligible to serve as an Associate Member of Council." At present, the Chairman said, Associates to be eligible as Associate-Members of Council must have been in independent practice for three years. It was felt that that excluded from the Council a number of gentlemen who, from their position perhaps in official capacities, could not comply with that regulation. The Council had therefore decided to recommend that that rule be altered so as to admit any Associates as Associate-Members of Council. Also (2) that the words "but the names of members of the existing Council shall be distinguished by an asterisk" be omitted from By-law 30, so that when the list went out to the general body there should be no qualifying marks denoting members of the existing Council. Further (3) that the word "twenty-two" in the seventh line of the same by-law be altered to "twenty-eight," so that the Council should be bound to send up at least twenty-eight names in the house list.

The result of the Annual Elections having been announced, and a vote of thanks passed to the Scrutineers,

MR. RALPH NEVILL [F.], F.S.A., who had acted as Chairman of the Scrutineers, said he had seen with considerable regret that the scrutiny was in great part a farce, for as regards the Committees there was practically no competition. He had taken a very active part in the starting of those Committees, and he was sorry matters had got into that state. He could not believe that the Institute was without willing hands to serve it, and it could not be for the advantage of the Institute that there should be no change in the Committees and that outside members should not be given a chance to serve. It might be said that it rested with members themselves to propose names for the Committees; but in the old days the Committees themselves took care that there were some extra members nominated, so that there should be a real election. Reading the remarks made by his old friend Mr. Arthur Cates at the Annual Meeting as to the lack of progress made by the Institute, he could not help thinking that it might be partly due to the fact that members were not given the chance of serving, but that the work of the Institute was allowed to lie too much in one set of hands. He himself had made a point of retiring from his Committee, because he had felt that it was not desirable that power should be in the hands of one person, but that it should pass freely round. He ventured to hope that another year the Committees might be able to submit a list which would give members an opportunity of voting and of bringing fresh blood in.

THE CHAIRMAN explained that in most cases the Committees had nominated more names than were required to make up the full strength of the

Committees, but some of the nominees had declined to serve; and so the candidates were reduced to the exact number required to make up the Committee.

PROFESSOR KERR [F.] said he thought the old system of electing the Council was a very good one—viz. that a certain proportion of the Council (or Committees) went off as a matter of compulsion every year. The consequence was that the Council was put on its mettle to find equally good men, and it became the rule that for a man to get on the Council was a sort of pass and acknowledgment of his merit, which stuck to him for ever. In the last twenty years things had been different, and they appeared to be drifting into what used to be called in politics the close vestry system. Nothing could be more fatal to the Institute. Although there were very good men on the Committees, the younger ones must be given a chance; and those who were coming forward must be encouraged to get on to the Council, to the credit of themselves and the credit of the Institute.

MR. C. H. BRODIE [A.] said that a Committee of Associates had impressed upon the Council the absolute necessity, if there was to be any progress in the Institute, of a certain number of members retiring from the Council every year. He had heard with much satisfaction that some reforms were to be brought forward, but he very much regretted that the retirement of a certain number of members of the Council was not to be one of these reforms.

MR. E. W. MOUNTFORD [F.] expressed himself in favour of the compulsory retirement of a certain number of the Council every year, but there were great difficulties in the way. The Associates' Committee would be doing a good service if they could produce a thoroughly workable scheme for bringing about such retirement.

MR. BRODIE said that over twelve months ago in a letter to the Council, which was published in the JOURNAL, he had ventured to suggest a way by which the by-laws could be altered. There could have been no more difficulty in altering the particular by-laws referred to in his proposition than in altering those referred to in the propositions of the Council mentioned by the Chairman that evening.

MR. LACY W. RIDGE [F.] thought the real difficulty was this: it was not the custom of the Council to watch the progress of members. A man might be a Fellow of the Institute for a great many years, without the duty of serving on a Standing Committee, or ultimately on the Council, ever being brought home to him. The Council should keep a list of persons who were eligible for the office of Vice-President, and a list of Fellows whose turn it was to serve on the Council, and they should be asked to serve as a favour. As

far as his experience went, anybody who served on the Council was doing the Institute a very great favour, for a more uninteresting service he had never gone through. It should be put as a duty to these men that they should serve on the Council. Careful watching on the part of the executive was what was required in order to get a change of men on the Council and Committees. By such means the Council and the Standing Committees would get in touch with the members of the Institute and with the architectural profession, in a way that it could not be said they were at the present time.

THE CHAIRMAN said that the comparatively small alterations the Council proposed to recommend would have to go before a General Meeting, and any suggestions from members would not fail to receive the greatest possible consideration from the Council.

MR. RALPH NEVILL [*F.*] said that when the rules now in force were brought in he advocated very strongly that the same rule should obtain in the Institute as obtained in nearly every public body in the kingdom: that at least a third of the members should retire from the Council every year; but his proposal met with very little support. He hoped they would now take steps to bring the rules of the Institute more into line with those of other bodies of the kind.

The Institute Premises.

At the same Meeting MR. H. HARDWICKE LANGSTON brought forward the motion standing against his name in the notice-paper—viz. "That in the opinion of this Meeting it is desirable to put a suitable and prominent inscription on the street front of No. 9 Conduit Street, indicating that those premises are occupied by the Royal Institute of British Architects." Mr. Langston said that it was contended that under the terms of their lease they were forbidden to put up an inscription such as was suggested in the Resolution. He had read the part of the lease referring to this, and he did not see that it was absolutely prohibited; but even if it were, such a condition could not be binding unless the consent of the general body of members had been obtained to it. The Royal Institute of British Architects fulfilled important public functions; it was an examining body, it was mentioned in various Acts of Parliament, and was empowered to confer diplomas and certificates to aspirants for important public offices. There was every reason to believe that the prestige of the Institute would go on increasing; that the public would look more and more to the Institute as a guide. Let them cease to belittle themselves by any show of false modesty in hiding their name; rather should they endeavour to make their name widely read and known, in recognition of that supreme confidence which they hoped always to deserve.

THE CHAIRMAN said it would be desirable to read the clause in the lease to which Mr. Langston referred. It was as follows:—"And that they the said Institute their successors or assigns shall not at any time during the said term" (that is, the term of the lease) "without the consent of the said Company" (that is, the Architectural Union Company) "its successors or assigns allow any inscription advertisement or names whatsoever to be inscribed or placed upon in or about the front of the said demised premises or in or about the doors of the vestibule leading thereto, excepting the name and title of the said Institute, subject to the approval of the Board of Directors of the said Company." The Council, continued the Chairman, had had the matter before them that afternoon, and if it was the wish of the Meeting, the Council would do their best with the Architectural Union Company to get the name of the Institute put prominently upon the building.

MR. LACY W. RIDGE seconded Mr. Langston's proposal. Unless there was some serious reason to the contrary, it should be done.

MR. H. T. BONNER [*A.*] said he was quite in sympathy with Mr. Langston's proposal, but it did not go far enough. The name of the Institute was totally unknown to the general public. The Institute ought to have a building of its own, like the Engineers, the Surveyors, and other bodies. He was afraid that it would hardly help the dignity of the Institute to put the name up on the front. He should quite agree with the restriction in the lease until they had got a building worthy of their great institution, worthy of that which they thought it should be, and worthy of their great art.

MR. HUGH STANNUS [*F.*] supported the resolution. What was asked for was a very desirable and very proper thing to do. He observed from the wording of the lease that Mr. Langston was right in his contention that they had the power to put the name on their premises, subject to the approval of the Architectural Union Company. The Company were bound to admit the name; they only reserved their approval as to the manner of affixing it. That is to say, whether they should incise it in stone, or put up a painted fascia board, or put a brass plate on each side of the door-posts. He thought it a matter that would be easily settled with the Union Company.

MR. RALPH NEVILL supported the resolution, though he quite sympathised with a previous speaker, and wished that not only the front, but the whole of the premises were the Institute's, but if they waited for that they might wait for ever. At any rate let them have the name, that people could recognise and see it.

MR. W. HILTON NASH [*F.*], in supporting the resolution, said he hoped this would be the beginning of a much larger question; he hoped it would be the beginning of a fund being started

for acquiring a building of their own. That was what they ought to have had years ago. There were a great many wealthy members of the Institute who might be tempted to subscribe for such a purpose. Of course they were not engineers, who made such enormous fees; but they might be content with a much less important building than the Engineers or the Surveyors, or even the Mechanical Engineers. These bodies had their fine buildings; why should not the Architects, who more than any others ought to have a fine building? Why should they not at once start a fund to get their own premises?

Mr. Langston's motion was then put and agreed to.

Report of the Special Committee on Building By-laws in non-Metropolitan Districts.

The business before the Institute last Monday included the consideration of the Report of the Special Committee appointed by the Council in accordance with the resolution passed at the General Meeting of the 16th January last, respecting the administration of local building by-laws in rural districts.* The Committee was composed of the following members:—Messrs. S. Flint Clarkson, H. O. Cresswell, E. Guy Dawber, W. M. Fawcett, M.A., Arthur S. Flower, M.A., F.S.A., William Henman, Lacy W. Ridge, A. E. Sawday, H. D. Searles-Wood, and Professor T. Roger Smith. The Report, which was recommended by the Council for approval and adoption, is as follows:—

The Committee have considered the present condition of Building By-laws in England outside the County of London, and their administration.

Some of the larger municipalities are governed in these respects under private Acts of Parliament, but the great majority of boroughs and urban districts have adopted By-laws under the Public Health Acts which have been confirmed by the Local Government Board, and they are for the most part founded on, though they do not absolutely follow, the Model By-laws issued by that Board.

Around some of the larger centres of population there are urban districts which have obtained the sanction of the Local Government Board to Building By-laws varying in several particulars from the Model By-laws and from one another. This want of uniformity in districts closely adjacent causes inconvenience and irritation to building proprietors as well as to architects.

It is within the powers of rural sanitary authorities to apply for and obtain from the Local Government Board "urban powers," which have been freely granted. They can then adopt the whole of the Model By-laws.

When adopted the By-laws become operative

not only in that part of the district which is crowded, but also in its suburbs and outlying districts; and thus a rural district, often extending for miles round the large village or small town which forms its centre, has just the same building regulations as a crowded town.

It is the experience of the Committee that some of the By-laws thus introduced are not well adapted for general use throughout the country, and when applied in connection with ordinary buildings over large areas of a purely rural character, they become oppressive.

The enforcement of unnecessary regulations in respect of matters in which the public has no practical interest seems to the Committee an improper interference with the liberty of the subject.

It gives useless trouble to local authorities.

It multiplies undesirably officials to be paid out of the rates.

It adds unreasonably to the cost of building.

It promotes monotony in design, stultifies invention, and prevents improvement.

It occasionally stops building. More particularly it discourages the erection of cottages for the labouring classes by landed proprietors on their country estates.

Recognising the necessity for such Building By-laws as are proved to be essential to the safety or health of the public, and desiring that the By-laws relating to the same subject should, as far as practicable, be alike throughout the country, the Committee suggest that the Model By-laws should be grouped in divisions as detailed below, in order that buildings in rural localities may be relieved from those divisions which appear inapplicable in such places. In an Appendix [p. 450] they deal in detail with each division so far as amendment appears to them needed therein.

Suggested Divisions.

A. Definition of Terms and Exempted Buildings [Model By-laws 1 and 2].

B. New Streets [3-8].

C. Space about Buildings and Area of Windows [53-58].

D. Structure of Party Walls [25-32].

E. Structure of Walls, Foundations, Roofs and Chimneys [11-23, 33, 34, 36-52].

F. Sanitation, Preparation of Site, and Drainage [9, 10, 17, 52A, 60-89].

In rural districts the Committee consider that A, D, and F would suffice. It might be desirable to add B in the case of any part of a rural district likely to become urban.

Possibly E might be added, to apply only to large public buildings, warehouses, and factories of considerable height. Ordinary shops should not be regarded as other than domestic buildings.

In towns where a competent building surveyor

* JOURNAL, 28th January 1899, pp. 161-66, 168.

of experience is engaged the whole of the By-laws should be in force. In such places exemptions from certain divisions of the By-laws should be made applicable to particular buildings rather than to districts. The Committee are of opinion that in no case should the exemptions extend to sanitary matters. The exemptions they suggest are set forth in the Appendix, Division A, No. 2.

It appears to the Committee that no Model By-laws can be considered complete which do not include those to be enforced by local authorities with respect to the staircases and exits of public buildings and factories, even though authorised otherwise than under the Public Health Acts.

It is of great importance that the requirements of the local authorities as to the deposit of drawings should be reasonable, and that they should be explicitly stated. The Committee suggest that in all cases a block plan, with the lines and depths of drainage shown thereon, together with the nearest public roadway and adjoining premises within 100 feet of the proposed building, should be deposited, and that, where required, plans and sections (together with elevations, if needful to explain methods of construction) should be submitted for inspection during a defined and limited time; which drawings should be then returned, stamped, if approved, or, if not approved, accompanied by a precise statement of the particulars in which the By-laws have not been complied with.

It would be of great advantage if an appeal could be provided to a technical authority as to the meaning and applicability of by-laws.

The Committee have the honour to lay this Report, with the Appendix, before the Council of the Royal Institute of British Architects, and request that it may be submitted to a General Meeting.

It might be well to forward copies to the Allied Societies, for their consideration, before the Meeting is called.*

On the report being adopted, the Committee suggest that the Institute should request the Local Government Board to receive a deputation, whose objects would be to point out to the Board the desirability of altering some of their Model By-laws and arranging them in divisions, and to request the Board to take such steps as may be necessary to bring the new method of administering the By-laws before the notice of the local authorities.

The influence of those who are interested in building would have to be brought to bear upon the local authorities to urge them to give effect to the proposed measures of relief by adopting such, and such only, of the divisions of the By-laws as would be applicable to their districts or to different portions thereof.

* Copies of the Report were sent to the Allied Societies, and their opinion invited thereon, according to the suggestion of the Committee. The replies received were read to the Meeting of the 12th inst., and are printed on pp. 453-54.

SYNOPSIS OF MODEL BY-LAWS AS ISSUED BY THE LOCAL GOVERNMENT BOARD.

NO.	DIVISION
1. Interpretation of terms	See Appendix, A.
2. Exemptions	See Appendix, A.
3-6. New streets. <i>Retain</i>	B.
7. New streets.	See Appendix, B.
8. New streets. <i>Retain</i>	B.
9, 10, 10a, 10b. Sites. <i>Retain</i>	F.
11, 12. Walls	See Appendix, E.
13-16. Walls. <i>Retain</i>	E.
17. Damp course	See Appendix, F.
18, 19, 20, 21. Walls	See Appendix, E.
22, 23. Walls. <i>Retain</i>	E.
24. Wood in external walls. <i>Omit</i>	
25-32. Party-walls	See Appendix, D.
33, 34. Support of timbers. <i>Retain</i>	E.
35. Brick nogging. <i>Omit</i>	
36-51. Chimneys, &c. <i>Retain</i>	E.
52. Roofs. <i>Retain</i>	E.
52a, 60a. Water on roofs, &c.	See Appendix, F.
53, 54. Open spaces	See Appendix, C.
55, 57. Windows	See Appendix, C.
Heights of stories. <i>Omit</i>	
56. Ventilation under floors. <i>Retain</i>	C.
58. Ventilation of rooms. <i>Retain</i>	C.
59. Ventilation of public buildings. <i>Omit</i>	
60. Subsoil. <i>Retain</i>	F.
61-64. Drainage. <i>Retain</i>	F.
65. Drainage	See Appendix, F.
66-79. Drainage. <i>Retain</i>	F.
80-85. Ashpits. <i>Retain</i>	F.
86-89. Cesspools	See Appendix, F.
91, 92. Notices and plans	See Report.

APPENDIX.

Division A.

DEFINITIONS AND EXEMPTIONS.

Interpretation of Terms.

Model By-laws

No. 1.

Terms defined by the Acts under which the By-laws are made should be inserted here for general information.

"Base" of a wall carried on a bressummer should mean the course above the bressummer. See London Building Act 1894.

"Topmost story" should be defined to include a one-story building.

As far as possible the interpretations should accord with the London Building Act 1894.

Exempted Buildings.

No. 2.

It is undesirable that any buildings should be exempt in practice from supervision respecting sanitation and drainage; certainly not railway stations.

No. 2 (h) (i) (j). To be substituted for Model By-law No. 2 (h) (i) (j).

The following buildings to be exempted from all By-laws excepting Division F. (Sanitation &c.).

(h) Any building, not being a Public Building or Factory (or which being a Public Building or Factory is one story only in height and is without any gallery), which is situated not less than 15 feet from the boundary of the curtilage thereof.

For the purposes of this By-law two domestic buildings shall be regarded as one building provided they are separated by a party-wall in accordance with Division D.

NOTE.—*This is not intended to exempt any Public Building or Factory from By-laws regulating Exits and Stairs, should such By-laws be introduced.*

(i) Any building situated within 15 feet of the boundary of the curtilage, which is distant 15 feet at the least from any public way and from any other building within the curtilage, and does not exceed 600 superficial feet in area nor 15 feet in height, provided that its external or party-wall towards the boundary of the curtilage is constructed as provided for a party-wall in Division D.

(j₁) Greenhouses if not attached to other buildings (see London Building Act).

(j₂) Greenhouses attached to other buildings so far as regards the necessary woodwork of their sashes, skylights, doors, and frames.

Division B.

No. 7 (c). Suggested amendment:—He shall construct on one side at least of such street a footway not less than six feet wide.

Division C.

No. 53. Omit 53 in favour of 53A.

No. 54. Add to 54 and its provisos Section 41 London Building Act, part of Subsection i., modified thus:—

Where there is a basement story directly and sufficiently lighted and ventilated, or where the basement story is not con-

structed or adapted to be inhabited, or where there is no basement story, and where the ground story is not constructed or adapted to be inhabited, the open space required by this section may be provided above the level of the ceiling of the ground story or a level of 16 feet exclusive of lantern lights, measured from the level of the adjoining pavement.

Section 52 of the London Building Act should also be introduced in the following form:—

In the case of domestic buildings and stables or other dependent buildings abutting in the front upon a street and in the rear upon a mews or public way, the sufficient open space provided for the domestic building shall serve also for the stables or dependent building.

It might be desirable to introduce Section 45 London Building Act respecting "Courts within a building."

No. 55.

Suggested amendment: Every person . . . shall construct . . . suitable windows in such manner that effectual means of ventilation by direct communication with the open air shall be provided for every habitable room of such building.

NOTE.—*It is not desirable that the heights of stories should be arbitrarily fixed by By-laws.*

Division D.

PARTY-WALLS.

Model By-laws.

Such parts of Nos. 19, 20, 21, and 22 as relate to party-walls, and Nos. 26, 27, 28, 29, 30, 31, and 32.

Every wall built for the separation of adjoining buildings belonging to different owners or occupied or adapted to be occupied by different persons shall be constructed of good bricks, stone, or other hard and fire-resisting material, properly bonded and solidly put together with good mortar.

Such wall shall in no part be less than 8½ inches in thickness. It may, however, be divided into two thicknesses of 4½ inches by a flue, provided that such flue be pargetted and has an opening into one only of the adjoining premises.

Such wall shall extend from

the foundations or footings up to the underside of the incombustible roof covering, and shall be built or properly corbelled out to the full extent of any projecting string, eaves, or other architectural feature any part of which within 3 feet of the party-wall is constructed of wood or other combustible material.

It shall also be carried up the full width and height of any turret, dormer, lantern light, or other erection on a roof or flat any part of which within 4 feet of the party-wall is constructed of wood or other combustible material.

No timber shall be built into or placed in any party-wall nearer than $4\frac{1}{2}$ inches to the centre line thereof, nor within 9 inches of the inside of any flue or chimney opening, nor within 7 inches of the upper surface of any hearth; nor shall any wooden plug be driven into any such wall nearer than 6 inches to the inside of any flue or chimney opening.

Such wall shall in each of the following cases be carried up above the roof or flat or gutter of the highest building adjoining thereto to such height as will give a distance of at least 15 inches, measured at right angles to the slope of the roof, or above the highest part of any flat or gutter, as the case may be, and shall be properly coped and protected from water soaking into the wall:

(a) When either of the adjoining buildings has a roof not externally covered with slates, tiles, metal, or other incombustible material;

(b) When either of the adjoining buildings exceeds 30 feet in height, measured from the lowest part of the ground-floor story to the tie of the roof, or to halfway up the gable if the roof has no tie;

(c) When either of the adjoining buildings is intended or adapted to be used as a public building or as a warehouse, factory, or workshop.

When either of the adjoining buildings is of the class described under (c) and exceeds the dimen-

sions described in (b), the wall shall be carried up for a distance of 36 inches above the roof, flat, or gutter, as the case may be, and shall also extend 12 inches higher and wider on each side of any turret, dormer, lantern light, or other erection on a roof or flat any part of which within 4 feet of the party-wall is constructed of wood or other combustible material.

Buildings adjacent to the boundary of the curtilage thereof.

Model By-law.

No. 25.

When the external wall of a new building is within 7 feet 6 inches of any boundary of the curtilage other than a public road, the wall shall be built of incombustible material, and no timber or other combustible material shall be fixed beyond the face of such wall.

Division E.

STRUCTURE OF WALLS, &c.

Model By-laws.

No. 11.

Add:—Any story in a roof, and the story immediately below the roof not being the ground story of a detached or semi-detached domestic building, may be enclosed with timber studding, not less than 4 inches thick, properly framed, covered externally with weather-tiling or plastering, and internally with plaster work covering the whole surface excepting the necessary openings. Such enclosure, when properly corbelled out, may overhang the wall below provided the soffit be plastered.

No. 18 (iii.)

Add to 18 (iii.):—A pier not less in width and breadth than twice the thickness of the wall as defined for each story, and standing on a solid foundation, shall be deemed to be a return wall for the purposes of measuring the length of walls.

Nos. 19 & 20.

Omit "and every party-wall," and add in both cases:—The minimum thickness of every party-wall shall be $4\frac{1}{2}$ inches less than that prescribed for an external wall of corresponding height and length, but in no case less than $8\frac{1}{2}$ inches.

Add to 19 (not 20):—Where the wall of any domestic building,

hereby required to be 13½ inches or more in thickness, is covered externally with tiles or other similar incombustible and impervious material securely fastened thereto, the said thickness may be reduced by 4½ inches, provided that such reduction shall not be made on more than one story nor on any ground story nor on any story exceeding 10 feet in clear height.

No. 24. Omit 24. See sec. 55, London Building Act 1894.

No. 35. Omit. There is no corresponding rule in the London Building Act 1894.

No. 52A. Omit. See Division F, substituted By-law.

Division F.

SANITATION, PREPARATION OF SITE, DRAINAGE.

Model By-laws.

No. 17. Substitute "floor" for "timbers" in line 5. In the second paragraph a vertical damp-course should be substituted for the hollow wall described.

Nos. 52A & 60A. Substitute the following:—Every person who shall erect a new building shall make suitable provision for carrying off the rain-water from the roofs, flats, gutters, and areas in such manner as not to cause dampness in any part of the walls or foundations of such building or any adjoining building.

No. 65. It should be made to appear that this applies only to foul drains.

Nos. 86 to 89. The provisions respecting cess-pools are unpractical and unsatisfactory. The question of the disposal of sewage where no sewers are available requires reconsideration under modern conditions.

The adoption of the Report having been moved by the Chairman, the following letters relating thereto were read by the Secretary:—

22, Market Place, Durham: 8th June 1899.

DEAR SIR,—With respect to the Committee's Report on the above subject, there are two by-laws in force in this district, and I believe in many other districts also, which I see are not referred to in the Committee's Report, but which I consider are well worthy their attention. I think they are harsh and unreasonable, and are calculated to restrict building enterprise to a very large extent.

The first is No. 4, affecting the width of streets. I admit that it is advisable that a new street should not be less than 36 feet wide. But supposing two owners have land adjoining one another, and a new road is to be formed on the boundary between the two properties, which owner has to give up the land to form the new road? As the by-law stands, the owner who *builds first* must give the entire strip 36 feet wide to form the new roadway, or he will not be allowed to build. Then the owner on the opposite side may step in and build right up to the extreme edge of his land and not give up a single inch, *because the 36-feet roadway is then in existence*. This is manifestly unfair, and must and does deter many persons from building. In my opinion, where a building owner only intends to build on one side of the street, then half the full width—viz. 18 feet—only should be enforced; then, if the adjoining owner wishes to build also (on the opposite side), he should also give up a width of 18 feet also; thus, when the street is completed, the full width required (36 feet) will then be obtained.

The second is No. 19 (a), affecting the thickness of walls. Where a wall does not exceed 25 feet in height and does not comprise more than two stories, it shall be 9 inches thick for its whole height; but if it comprises more than two stories (say three stories), then it shall be 13½ inches thick *below the topmost story* and 9 inches the rest of its height—that is, in the whole of the *two lower stories* the walls must be 13½ inches thick. In my opinion this ascending scale commences with too great a jump, and that in such cases the *bottom story* walls only should be made 13½ inches thick, and the *two upper story* walls remain 9 inches thick, especially so when this by-law affects the party walls between a number of houses in a row or street.

Yours truly,

H. T. GRADON.

The Secretary R.I.B.A.

Birmingham Architectural Association, Queen's College, Paradise Street: 9th June 1899.

DEAR SIR,—In further reply to yours of the 18th ult., enclosing report of the Committee appointed by the R.I.B.A. to consider and report upon the administration of by-laws in non-Metropolitan districts, the report and appendix have been referred by the R.I.B.A. Council to our Committee on Building By-laws, who have for a considerable time past endeavoured in various ways to secure an improvement in the local by-laws and their administration. They, having considered the report and appendix, desire me to inform you that they gladly welcome the action taken by the R.I.B.A., and are of opinion that their Committee have dealt with the different points in a manner which meets with the approval of our Committee, and has their sympathy and support.

There are two points dealt with which have

been particularly under their attention, namely the heights of rooms or stories, and the thickness of walls with piers in them, and they are glad to see that both these matters have received attention.

As, however, our Committee consider that friction more often results from the administration than from the spirit of the by-laws, they think it would be well to draw particular attention in the report to the fact that mere regulations which have not received the sanction of the Local Government Board cannot legally be enforced.

On November 15th last I forwarded you a cutting from the *Birmingham Daily Post* giving a summary of what was then being done by our Committee and the way in which they were endeavouring to bring the question before the public.—I am, yours truly,

The Secretary R.I.B.A.

C. SILK, *Hon. Sec.*

*Leicester and Leicestershire Society of Architects:
10th June 1899.*

DEAR SIR,—In reply to your letter of the 18th of May respecting "The Administration of Building By-laws in Rural Districts," with your Committee's Report thereon, I beg to state that they have been laid before my Council and that generally speaking they acquiesce in the Report.

The Report was discussed, but no one clause was particularly voted as calling for special comment from my Council.—I am, dear Sir,

Yours faithfully,

HOWARD H. THOMSON, *Hon. Sec.*

The Secretary R.I.B.A.

MR. LACY W. RIDGE [*F.*] seconded the Motion. He was glad to hear the communication from Birmingham, as Mr. Henman had taken a great interest in the question. With regard to Mr. Gradon's communication, it was unfortunate that it had come now instead of when communications were invited. He was quite familiar with both the points Mr. Gradon raised. The London Building Act met his first objection by setting out the roads from the centre line of the old road, that is to say, each landowner was asked for half the road. They were also quite familiar with the difficulty about the 25-feet wall, but they did not care to tackle the whole question of the thickness of walls. The question of the party wall, however, they met by suggesting that where a brick and a half was required for external walls the party wall might be half a brick less than the external wall. They hardly expected absolute unanimity with regard to the whole of the Appendix, and they hardly expected that the Local Government Board would adopt the Appendix bodily. Nevertheless, it had been very carefully drawn up, and he believed its adoption would be a great relief to those who build outside the metropolitan district. Their main principles were that by-laws should be as much alike as possible throughout the whole country on the subjects on which they treat, that

by-laws should not necessarily be enforced in places where the public had no interest in interfering with the way in which people built. At the present time there was a great deal of unnecessary interference, because the same by-laws which were applicable to a crowded town were applied in an open field. They had divided up the by-laws in such a way that while some were applied, others could be left out in cases where circumstances so required.

MR. WILLIAM WOODWARD [*A.*] felt sure that he should have the Meeting with him in saying that a more sensible, careful report had never emanated from any Committee of the Institute. It had evidently been considered with so much care, and was the result of so much experience, that he should not attempt to discuss it. With regard to the clause "When adopted the by-laws become operative not only in that part of the district which is crowded, but also in its suburbs and outlying districts; and thus a rural district, often extending for miles round the large village or small town which forms its centre, has just the same building regulations as a crowded town," it should be borne in mind, that what was to-day a suburb might, in the course of a few years, become part of a crowded town, and therefore it would not be wise to at once eliminate the regulations and rules from that suburb. But that objection was met by a singularly wise paragraph towards the end: "It would be of great advantage if an appeal could be provided to a technical authority as to the meaning and applicability of by-laws." Therefore, supposing it was objected that a by-law which applied to a crowded town should not apply to an outlying district, that would be met at once by reference to this technical authority. Then, with regard to the enforcement of unnecessary regulations, the Report said: "The enforcement of unnecessary regulations in respect of matters in which the public has no practical interest seems to the Committee an improper interference with the liberty of the subject"; and the Committee very wisely gave their reasons for that opinion. That was one of the objections raised at Birmingham, and not only could it be well raised in Birmingham but also in London. Such improper interference with the liberty of the subject conducted neither to excellent construction nor to sanitary improvement, and irritated those who had to conform to an Act or to build either in London or in the provinces. If there could be a clause at the end of the Building Act of 1894 to the same effect as that at the end of the Report, it would conduce to the happiness of every architect practising in London, and to that good feeling which should exist between architects and district surveyors, whether in London or in the Provinces. With regard to the sentence "The Committee are of opinion that in no case should the exemptions extend to sanitary

matters," that was an exemption which did not affect the points to which he had referred. As to the requirements of local authorities, the Committee suggested that in all cases a block plan should be sent; and he was happy to find that the Committee had omitted any reference to the scale of that block plan. Those who had to send in drawings to the London County Council would agree that when an absolute scale was enforced upon them it meant considerable trouble which was altogether unnecessary. The Ordnance Survey would probably supply the London County Council with all that was necessary. Then it said a little further on, "together with the nearest public roadway and adjoining premises within 100 feet of the proposed building." As to those words "within 100 feet," he submitted this involved a little unnecessary trouble on the part of the architect. All one should be required to show would be the building immediately adjacent to the building that was the subject of one's application. At the end of the same paragraph were the words—"which drawings should be then returned, stamped, if approved, or, if not approved, accompanied by a precise statement of the particulars in which the by-laws have not been complied with." That was an opinion which he hoped would be communicated to the London County Council. One excellent addition to the Building Act as it was amended in 1894 was that the Council should give their reasons for any particular alterations they wished made, and if this was done in detail it would be a considerable advantage to architects. The result of the deputation proposed by the Report he was sure would be of considerable advantage to everybody practising in the provinces. He considered the Committee deserved the warmest thanks of the Institute for their very sensible and skilful report.

MR. E. W. HUDSON [A.], referring to Mr. Woodward's remarks, considered it absolutely necessary to show more of the buildings than simply the adjoining building. If it were a question of the frontage line, and one showed only the frontage of the adjoining building, a building line might be shown which was no building line whatever; it might be simply set back beyond the actual building line. In such a case one would be sending up a plan which would possibly be sent back.

MR. P. GORDON SMITH [F.], Architect to the Local Government Board, said the Report had his entire sympathy. The whole question, however, was full of difficulty, because it opened up certain alterations in the legislation that had hitherto guided them. The law allowed any rural district council to apply for urban powers, and it would be a very grave responsibility for the Local Government Board to take if they were to refuse to grant urban powers to any place that applied

for them. He did not think they would get any Government Department to take that responsibility. The proposals, however, certainly had a great deal to commend them to those in authority, and he would do all in his power to bring them about.

MR. RALPH NEVILL [F.], F.S.A., said that having come very much in contact with urban authorities, and finding himself extremely hampered by them in purely rural districts, he could not agree at all with what Mr. Gordon Smith had said. The Local Government Board, he thought, was especially intended to keep local authorities in order, and prevent their usurping too much authority or misusing their authority. The most unreasonable requisitions were made, and he spoke as one who had lived in old houses and knew a good deal about them. For instance, take the question of height, which was left indefinite in the Report. He would suggest that the 8 feet 6 inches height, which was commonly prescribed in by-laws, was most unreasonable. He would suggest that the deputation, if they could not carry the omission of a definite height, should at any rate get the Board to restrict it to 8 feet, which used to be the limit; and not only to restrict it to 8 feet, but to allow that to include the ceiling and floor, because that made a difference of 3 inches at least. As to the two stories referred to by Mr. Gradon, that was a very vexatious regulation, because it was interpreted to mean that if one had a gable, or even a half gable, one was forced to build the two stories below it 14 inches, which was quite unnecessary in a cottage or a small building. If there were a third story on the top it would not matter, but the rule was interpreted to mean that they could not even fill up the gable with wood framing without two 14-inch walls below. He would ask the deputation to introduce something to exclude such cases from the operation of that rule. That was a very important point, because it often forced an architect to hip a roof when he did not want to go to expense simply to avoid having that extra 4½-inch wall. In cottage building one had to consider every pound spent. As to the relation between wall-space and windows, the London County Council rule in that respect was less strict than that enforced in country districts, where if there were rooms entirely in the roof, going right up into the roof and very capacious, the windows must have one-tenth of the floor space. The London County Council required only one-twelfth, and that was quite bad enough. The consequence was that absurd malpractices went on; a match-board partition was put up to cut off the bedroom, and after the buildings had been passed, the match-board was taken down and the room reverted to its full size. Then allusion was made to timber buildings. In the country for years and years he had been in the habit of building timber in par-

ticular ways of his own—a combination of timber and concrete. But unless he got special permission he could do that no longer; he was obliged to go back to some utterly ridiculous and bad system of building: one must not introduce a single new thing. The one thing he regarded as absolutely essential was concrete under the ground floors, and that was not insisted upon in many by-laws. Then there was a point which affected him very much in his mode of building. He wanted the deputation to point out that a foundation of cement concrete was equivalent to footings of brick or of anything else; that if the foundation was made of cement concrete it dispensed with the need of footings of stone or brick. It was difficult to persuade a country surveyor or the people who had authority that there was not some subtle merit in bulging the walls at the bottom with bricks or stone; but a little reflection would show that the wall was none the stronger for this so long as there was a firm basis at the bottom. It did not matter where the horizontal join came so long as the bottom was solid. Being asked how much concrete he used, Mr. Nevill said it depended on the footing, but a foot of concrete was plenty for a small building. The quantity depended upon circumstances. Cement concrete was quite as strong as, or stronger than ordinary brickwork. He feared he ought to have made these remarks beforehand, but he thought they should have an opportunity of discussing the matter, and it was not very easy to find time to sit down and write them out. He hoped the matter would be even a little more threshed out than it had been, now that it had been brought prominently before the Institute, and that it would be pushed very strongly.

PROFESSOR KERR said that the proposal that there should be a tribunal of some sort had struck him as a matter of great interest and novelty. There was one drawback in building all over London. He was constantly met with cases in which a difficulty had unexpectedly arisen with regard to the interpretation of the Building Act. If a tribunal of a very simple kind could be set up—he did not mean a State tribunal, but some sort of tribunal such as was suggested in the Report—whereby there might be a means of clearing up difficulties by the making of by-laws and the administration of them; if that could be set up, he was sure it would do a great deal of good in London, and he had no doubt it would in the country. His advice, when there was any difference of opinion as to the meaning of words in the Act, was to leave that to the lawyers; but there could not possibly be any doubt as to the intention, between the district surveyor as an architect and the builder as a builder, therefore carry out the intention. That, he believed, was the right way to administer the building laws. If some inconvenient regulation of a superficial character

had crept in, why could not somebody usurp authority and dispose of it? No man accustomed to transact public business could do it without usurping authority in the interest of good sense. [MR. GORDON SMITH observed that a tribunal such as had been suggested would be admirable.] Continuing, Professor Kerr said that in London he had been under the impression that it was as well to act with something like common sense. That was how he did it. He stood not upon the letter of the law, but upon principle.

MR. LACY W. RIDGE, replying to some of the points raised, said that the reason why the remarks about the height of the rooms appeared in italics was, that these regulations were not in the model by-laws at all. They had only been recently introduced in certain places. With regard to the tribunal, he was extremely glad that this had Mr. Gordon Smith's approval, because if there was a difficulty about such things in London, how much greater were the difficulties with a small rural board which knew absolutely nothing about building, and only employed an inexperienced surveyor. Such boards thought they were bound to enforce these by-laws, and absolutely without discretion. He could not agree with Mr. Gordon Smith with regard to the duty of the Local Government Board. If the Local Government Board did not moderate laws of this sort, and point out to small local authorities that they were assuming to themselves powers unfit for the work they had to do in their particular case, it seemed to him that the Board was not doing what Parliament intended them to do.

THE CHAIRMAN, in putting the motion, observed that it must be a source of great gratification to Mr. Ridge to find the almost unanimous agreement of the meeting with the conclusions at which the Committee had arrived.

The motion was carried unanimously.

Party Structures.

THE CHAIRMAN then referred to the resolution on Party Structures which appeared on the notice-paper, and moved as follows: "That the Royal Institute of British Architects petition the Local Government Board to promote a Bill in Parliament to regulate the procedure in dealing with party structures in a similar manner to the London Building Act 1894, in all parts of England where there are no Acts of Parliament dealing with such party structures."

PROFESSOR KERR having asked whether that referred to the tribunal of three surveyors, and being answered in the affirmative, said that nothing could be more useful than that enactment of the Building Act. Partnership disputes were always exceedingly difficult to settle, and exceedingly expensive and troublesome. A party wall was a wall in joint ownership; each of the owners possessed an undivided moiety of the whole. Consequently if, as

a partnership property, anything of importance had to be done with that wall, the danger was that they might get into the hands of the lawyers and never get out again. Consequently the Legislature had most wisely appointed a peculiar special tribunal—a tribunal of three surveyors, and if the proposal was that that should be extended over the whole country, no one who had had experience of the London Building Act could possibly differ. He seconded the motion with pleasure.

MR. RIDGE said that this resolution was brought forward by a member of the Special Committee; but the Committee did not take it up originally because their object was in their Report to keep within the existing law. They did not wish to take the responsibility of anything which would necessitate an Act of Parliament, and therefore they referred the resolution to the Council. The Council referred it back to the Committee, and the Committee highly approved it. He thought the feeling was exactly that which Professor Kerr had expressed, that the system found most useful within the Metropolitan district would be most useful outside London.

MR. WOODWARD, under a misapprehension as to the nature of the tribunal referred to, which he assumed to be the London Tribunal of Appeal, suggested the addition of certain words to the resolution.

THE CHAIRMAN explained that the tribunal consisted simply of the three surveyors, and referred to the party wall question solely.

MR. S. FLINT CLARKSON [F.] pointed out that the tribunal of appeal referred to was not a tribunal of appeal in the sense of the 1894 Act, but the official referees of the 1844 Act. The official referees had practically certain powers of legislation, and that was what had been acted upon in the non-Metropolitan by-laws.

The resolution was then put and carried unanimously.

Sir L. Alma-Tadema, R.A.

MR. J. M. BRYDON, at the conclusion of the business before the Meeting last Monday, asked permission to introduce a motion, which, though not on the agenda, would, he was sure, be met with the most cordial approval of all present. Since the last Meeting, the Queen's Birthday Honours had been announced, and amongst the names of the individuals distinguished by the honour of knighthood was that of their Honorary Associate, Mr. Alma-Tadema, R.A. Sir L. Alma-Tadema had done yeoman service as a member of the Art Committee. He had attended their Meetings and helped them on any question connected with his art, and what he (the speaker) wished to propose was that the Meeting should send in the name of the Institute a note of congratulation to Sir L. Alma-

Tadema on his good fortune. He felt it would be a graceful thing for the Institute to do, to recognise in this way the honour conferred upon their distinguished member, and he thought it would be singularly appropriate that the Institute should pass a vote of congratulation on this occasion.

MR. E. W. MOUNTFORD seconded the motion, which was thereupon put from the Chair and carried by acclamation.

Secret Commissions.

With reference to the paragraph in the last issue of the JOURNAL, p. 434, in which attention was drawn to a line in a circular from Messrs. De Grelle, Houdret & Co., a letter has been received from that firm stating that the line in question, "the prices enclosed are subject to 10 per cent.," referred in no way to a secret commission to the architect, but simply informed the addressee of the price at which goods were supplied to the building trade. In these circumstances the Editor of the JOURNAL has much pleasure in withdrawing any suggestions unfavourable to Messrs. de Grelle, Houdret & Co., and regrets the original misunderstanding.

Architecture and Engineering [p. 435].

MR. HENRY LOVEGROVE [A.] writes:—

I have used the Ludgate Hill Station since 1867 (London, Chatham and Dover, not South Eastern, as stated on page 435), and I agree with Mr. John Hebb as to the ornamentation of the railway viaduct. My opinion may not be worth much, but I consider that the various railway bridges, and there are many of them, crossing the Dulwich College Estate are very satisfactory, and it has been stated that these bridges were designed by Mr. Charles Barry, Past President R.I.B.A., who also designed the pretty little front to the North Dulwich Station.

I still adhere to what I said concerning the Tower Bridge at a recent meeting. The towers were designed by the late Sir Horace Jones; but Sir J. Wolfe Barry found it necessary to have a clothing only of stone instead of the red brick walls as designed, and the details were altered by Mr. G. D. Stevenson. Drawings of the original design and of the altered design can be seen at the Guildhall through the courtesy of Mr. Andrew Murray, City Surveyor.

REVIEWS.

ENGLISH CATHEDRALS.

English Cathedrals. Illustrated. By Francis Bond, M.A., F.G.S., Hon. A.R.I.B.A. 8s. Lond. 1899. [George Newnes, Limited.]

This book is an "attempt to make the study of the English cathedrals more interesting." Taking up the subject-matter as it occurs, we find in the

introduction the statement: "It has not been possible to insert plans in the book; it seemed hardly desirable to do so." The author then refers the reader to the valuable plans published in *The Builder*, and rightly states that "the student should never visit a cathedral without one of these plans." But, even with this statement, the omission of plans is a very serious one. At least one plan should have been inserted at that part of the introduction where he explains the nomenclature of the parts of a cathedral, which would have greatly helped the reader to understand the letterpress.

The author says: "Much time and trouble have been spent in the endeavour to correct the current chronology of the cathedrals. The subject is a difficult one. Suffice it to say that I have relied rather on architectural than on documentary evidence." To do this for *all* the cathedrals of England and Wales means an enormous amount of study; in fact, my experience is that the determination of the date for one cathedral alone from the architectural evidence mainly, involves much study for a long period.

In a book like this, which is intended to be a popular one, it would be better not to have written so strongly about their design as the author does. To take one example only. He says on page 60 that the vaulting of the eastern transept at Durham Cathedral is "singularly clumsy and ugly." Now here he should have explained his reasons for this statement, for, if my memory serves me rightly, the detail is very good indeed; while in Canon Greenwell's *Address on Durham Cathedral*, page 58, I find the reason for the peculiar planning of the vault.

The author states that he has studied all the English cathedrals on the spot, but that he had the misfortune to lose the whole of his notes and the greater part of his completed manuscript, which loss must have been a great hindrance to the successful completion of his book. He classifies the cathedrals as follows:—Thirteen cathedrals of the Old Foundation, thirteen of the New Foundation, and eight Victorian cathedrals; then eleven churches of Benedictine monks, four churches of regular canons of the Augustinian Order, two collegiate churches of secular canons, and four parochial churches. But in the body of his book he arranges them alphabetically, except the five Victorian cathedrals of Liverpool, Manchester, Newcastle, Truro, and Wakefield, and the four Welsh cathedrals, of which he writes shortly at the close of the volume, next to a short glossary which is placed at the end. He bases his classification of the periods of English ecclesiastical architecture on Mr. Sharpe's *Seven Periods of English Architecture*, but he does not directly explain on what Sharpe based his classification. My experience is that Rickman's classification is much the better one, and that the terms given

to the periods by him are more readily understood than those of Sharpe.

On page 2 the author says that the pointed arch was introduced "at first chiefly in arches of minor importance, or merely decorative." Now Sharpe distinctly states, and rightly too, that in the earlier buildings of the Transitional period the pointed arch is used in the arches of construction only . . . whilst the circular arch is used in the arches of decoration only.

In a short review one cannot enter into the author's description of all the cathedrals, but the impression that I have formed after carefully reading it, is that it is an interesting book. The author writes enthusiastically and well. There are 180 illustrations from photographs throughout the book, most of them being small. One good point which he mentions is that the magnificent series of chantries in Winchester Cathedral "form a continuous record of Perpendicular and Tudor architecture from 1366 to 1555."

In closing, I should draw attention to one slip, which is on page 297, where, in referring to the open-crown spire at Newcastle Cathedral, the author states that spires of similar construction occur in the Tron Steeple, Glasgow, and elsewhere: this should read the *Cross Steeple*.

Glasgow.

CHARLES GOURLAY.

MINUTES. XV.

At the Fifteenth General Meeting (Business) of the Session, held Monday, 12th June 1899, at 8 p.m., Mr. John Slater, B.A. [F.], in the Chair, with 16 Fellows (including 7 members of the Council) and 13 Associates, the Minutes of the Special and General Meetings held 29th May [p. 436] were taken as read and signed as correct.

The decease was announced of Thomas Cooke Nicholson, Fellow.

The receipt of donations to the Library was announced [see *Supplement*] and an expression of thanks to the several donors was ordered to be entered on the Minutes.

The Chairman referred to proposals of the Council respecting the extension of the class eligible to serve as Associate-Members of Council, and as to a change of procedure in the matter of elections to the Council, and, having indicated the changes in the By-laws which would be necessary to give effect to such proposals, stated that a meeting of the General Body would be called to discuss the matter at a convenient date [see p. 446].

The Chairman read the Reports of the Scrutineers appointed by the Annual General Meeting to conduct the election of the Council and Standing Committees. The following were declared to be the results:—

The Council.

PRESIDENT. William Emerson [unopposed].

VICE-PRESIDENTS (4).—John McKean Brydon; William Milner Fawcett; Henry Louis Florence; Edward Augustus Gruning [unopposed].

HON. SECRETARY.—Alexander Graham [unopposed].

MEMBERS OF COUNCIL (18).—Aston Webb, 485; Thomas Edward Colcutt, 440; Edward William Mountford, 424; Henry Thomas Hare, 423; John Alfred Gotch, 406; James Brooks, 386; William Douglas Caröe, 384; Leonard Stokes, 382; Richard Phené Spiers, 380; John Slater,

361; Thomas Blashill, 359; Beresford Pite, 359; Henry Heathcote Statham, 356; Paul Waterhouse, 350; John James Burnet, 346; Sir John Taylor, 338; Edwin Thomas Hall, 327; Frank Thomas Baggallay, 321. Not elected:—William Young, 320; Percival Gordon Smith, 312; Benjamin Ingelow, 295; Thomas William Cutler, 284; Sidney Robert James Smith, 262; Ralph Selden Wornum, 230.

ASSOCIATE-MEMBERS OF COUNCIL (2).—Henry Vaughan Lanchester, 279; James Sivewright Gibson, 266. Not elected:—John William Simpson, 204; Francis Thomas Wilberforce Goldsmith, 179.

REPRESENTATIVES OF ALLIED SOCIETIES (9).—Thomas Drew, R.H.A. (Royal Institute of the Architects of Ireland), 426; Charles Busted Fowler (Cardiff, South Wales, and Monmouthshire Architects' Society), 392; Robert Isaac Bennett (Manchester Society of Architects), 368; Joseph Smith (Sheffield Society of Architects), 358; Robert Evans (Nottingham Architectural Society), 357; William Glover (Northern Architectural Association), 354; Albert Edwin Sawday (Leicester and Leicestershire Society of Architects), 354; James Crocker (Devon and Exeter Architectural Society), 348; David Barelay (Glasgow Institute of Architects), 346. Not elected:—William Larkins Bernard (Bristol Society of Architects), 343; Thomas Martin Cappon (Dundee Institute of Architecture), 256; James Soutlar (Aberdeen Society of Architects), 248.

REPRESENTATIVE OF THE ARCHITECTURAL ASSOCIATION (LONDON).—George Halford Fellowes Prynn [unopposed].
[The above members declared to have been duly elected compose the Council.]

AUDITORS.—Zephaniah King, *Fellow*; Frederick William Marks, *Associate* [unopposed].

Art Standing Committee.

FELLOWS (10).—Ernest George, 467; John McKean Brydon, 462; Henry Thomas Hare, 445; Edward William Mountford, 427; Alfred Waterhouse, 426; William Douglas Carie, 411; John Macvicar Anderson, 404; James Brooks, 388; Henry Heathcote Statham, 366; William Young, 360. Not elected:—George Campbell Sherrin, 326.

ASSOCIATES (6).—James Sivewright Gibson, 457; Andrew Noble Prentice, 453; Robert Shekleton Balfour, 446; John William Simpson, 443; Henry Vaughan Lanchester, 442; William Henry Romaine-Walker, 434.

Literature Standing Committee.

FELLOWS (10).—Alexander Graham, 444; William Alfred Pite, 442; Henry Louis Florence, 437; Richard Phené Spiers, 435; John Tavenor Perry, 420; Paul Waterhouse, 410; Benjamin Ingelow, 404; Henry Heathcote Statham, 404; John Bilson, 370; Sydney Smirke, 369. Not elected:—John Hebb, 307.

ASSOCIATES (6).—Arthur Smyth Flower, 394; Percy Scott Worthington, 378; Andrew Noble Prentice, 366; Leslie Waterhouse, 366; Ravenscroft Elsey Smith, 331; John Humphreys Jones, 294. Not elected:—Edward William Hudson, 290; Hubert Christian Corlette, 242.

Practice Standing Committee.

FELLOWS (10).—Joseph Douglass Mathews, 469; Samuel Flint Clarkson, 460; Walter Hilton Nash, 458; James Osborne Smith, 450; Beresford Pite, 446; Thomas Batterbury, 468; George Hubbard, 458; Alexander Henry Kersey, 452; Thomas Harris, 447; Edmund Woodthorpe, M.A. Oxon., 437.

ASSOCIATES (6).—William H. Atkin-Berry, 479; Herbert Hardwicke Langston, 458; Sydney Perks, 455; Augustus William Tanner, 469; Charles Henry Brodie, 455; William Henry White, 454.

Science Standing Committee.

FELLOWS (10).—John Salmon Quilter, 466; Lewis Angell, 463; Percival Gordon Smith, 461; Alfred Saxon Snell, 461; Herbert Duncan Searles-Wood, 460; William Charles Street, 457; Hampden William Pratt, 456;

Benjamin Tabberer, 446; Lewis Solomon, 443; Delissa Joseph, 416.

ASSOCIATES (6).—Matthew Garbutt, 351; Max Clarke, 338; Bernard John Dicksee, 306; Charles Henman, 280; Henry William Burrows, 266; Sydney Benjamin Beale, 246. Not elected:—George Pearson, 245; Robert Langton Cole, 236; Owen Fleming, 232; Arthur Richard Mayston, 168.

A vote of thanks to the Scrutineers* was unanimously agreed to, on the motion of the Hon. Secretary.

The following candidates for membership were elected by show of hands under By-law 9—namely:—

As Fellows (5).

GEORGE FREDERICK BODLEY, A.R.A., *Royal Gold Medallist Elect*.

EDWIN ARTHUR JOHNSON (Abergavenny).

GEORGE AUGUSTUS BLIGH LIVESAY [A., qualified 1895] (Boscombe, Bournemouth).

EDWARD ARDEN MINTY [A.].

ANDREW MURRAY [A.].

As Associate.

JASPER WAGER [Qualified 1898].

As Hon. Corr. Member.

COMTE PAUL DE SUZOR, Member of the Imperial Academy of Fine Arts, St. Petersburg (St. Petersburg).

On the motion of Mr. H. Hardwicke Langston [A.], seconded by Mr. Lacy W. Ridge [F.] [p. 448], it was

RESOLVED, That in the opinion of the Meeting it is desirable to put a suitable and prominent inscription on the street front of No. 9 Conduit Street, indicating that those premises are occupied by the Royal Institute of British Architects.

The Report of the Special Committee appointed by the Council to consider the Administration of Building By-laws in non-Metropolitan Districts having been presented and considered, on the motion of the Chairman, seconded by Mr. Lacy W. Ridge [F.], the Report was agreed to, and adopted *nem. con.* [p. 449].

On the motion of the Chairman, seconded by Professor Kerr [F.], it was

RESOLVED, That the Royal Institute of British Architects petition the Local Government Board to promote a Bill in Parliament to regulate the procedure in dealing with party structures in a similar manner to the London Building Act 1894 in all parts of England where there are no Acts of Parliament dealing with such party structures.

Further, on the motion of Mr. J. M. Brydon [F.] [p. 457], seconded by Mr. Ed. W. Mountford [F.], it was

RESOLVED, That the Institute do offer their cordial congratulations to Sir L. Alma-Tadema, R.A., *Hon. Associate*, upon the Knighthood conferred upon him in the recent distribution of the Queen's Birthday Honours.

The proceedings then closed, and the Meeting separated at 9.45 p.m.

* The Scrutineers were Messrs. Ralph Nevill, T. H. Watson, H. Hoyne Fox, H. H. Langston, and Frank J. Potter for the Council lists; and Messrs. Percival Currey, Thomas A. Pole, John S. Quilter, and H. H. Collins for the Standing Committees. The Scrutineers report that 543 voting-papers were received; and that of the voting lists for Ordinary Members of Council, 7 were spoilt or blank, for Associate-Members 41, and for Representatives of Allied Societies 31.

LEGAL.

Architects' Charges.

PERRY AND REED V. BURNEY AND GRIMES AND ANOTHER.

This case came before the Lord Chief Justice and a special jury on the 1st May. The plaintiffs, Messrs. Perry and Reed, architects, of John Street, Adelphi, sought to recover from the defendants a sum of £1,030 15s. 11d. for professional services rendered by them. The defendants, Messrs. Burney & Grimes, of 313, Strand, and the other defendant, Mr. Albert Mathams, were owners of the King's Head Hotel, Margate, and in September 1897 they consulted the plaintiffs with regard to alterations they proposed to make in the structure of this hotel. The amount they were prepared to spend was about £8,000. After some negotiations it turned out that it would be necessary in rebuilding the frontage of the hotel to set back the wall, and this involved extra expense. The plaintiffs prepared the plans and submitted them to the licensing committee and town council, and they were duly passed. Tenders for the work were then invited, and the lowest that was received was £14,790. The defendants considered this was too high a price, and refused to spend more than £10,000, and they asked the plaintiffs to reduce their estimate. Fresh plans were prepared by the plaintiffs, and they applied to the defendants for payment on account. No notice was taken of the application, but the defendant Mathams referred the plaintiffs to Messrs. Burney & Grimes, as he stated he had sold his interest in the hotel. Messrs. Burney & Grimes declined to pay the amount claimed, on the ground that the plans were to be prepared on the basis that the alterations to be made were not to cost more than £8,000. They, however, paid £100 into Court to meet the claim against them.

The jury found a verdict for the plaintiffs for £800.

Judgement was given accordingly.

Mr. Tindal Atkinson, Q.C., and Mr. Whately appeared for the plaintiffs; and Mr. Foote, Q.C., and Mr. Montague Lush for the defendants.

The London Building Act: "Public Building."

LONDON COUNTY COUNCIL V. GUARDIANS OF ST. LEONARD'S, SHOREDITCH.

On May 5, at Worship Street Police Court, before Mr. Fordham, the Guardians of St. Leonard's, Shoreditch, were summoned by Mr. Meeson, one of the district surveyors for Hackney, for using a public building which was not constructed in accordance with his requirements. The case, according to the report in the *Law Journal*, turned on the effect of sections 78 and 79 of the London Building Act, and the definition of "public building" contained in section 5, subsection 27, of the Act, which includes schools, colleges, and workhouses.

Mr. Milner Jutsum appeared in support of the summons, and explained that the guardians had taken a large private house in the Clapham Road for the accommodation of about thirty workhouse children and three attendants. Certain alterations were made; but Mr. Meeson held that the building, being put to this use, became a public building, and he insisted that a separate staircase should be provided in case of fire. The guardians replied that the new premises were opened under an order of the Local Government Board, and that the children were simply meant to sleep there and to be there during the time that they would not be receiving instruction at a neighbouring Board school. The question for the magistrate to decide was whether this was a public building or not. The surveyor was of opinion that it came within the definition of the Act, "schools, workhouses, or buildings used for any other public purpose," and that it should have full protec-

tion in the case of fire. He need only remind the magistrate that in a similar building at Forest Gate several children were burnt to death.

Mr. Glen, for the defence, admitted the facts, but contended that the section of the Act did not apply to this case. This was not a public building in any sense of the word. The magistrate might be asked to hold that every cottage in which a pauper child was boarded out was a public building.—Mr. Milner Jutsum, in reply, said that this was a building which was occupied by pauper children, who would be in the workhouse if not in this building, and they were in charge of officials appointed by the guardians.

After hearing the arguments the magistrate said that he felt bound to hold that this building was a workhouse or an extension of the workhouse. He therefore had to find that the building was a public one, and used as such without the consent of the district surveyor. He imposed a fine of 1s., and refused costs, considering the question merely technical.

Building Occupied partly for Trade and partly as a Residence.

CARRITT V. GODSON.

This was a case stated by a Metropolitan magistrate which came before Mr. Justice Day and Mr. Justice Lawrence on the 5th June. The question was whether a public-house can be described as a building used in part for trade or manufacture and in part as a dwelling-house, so as to fall within the provisions of section 74, subsection 2, of the London Building Act 1894, as to separation of the portions in distinct use by structures composed of fire-resisting materials.

Mr. Avory appeared for the London County Council, and Mr. A. F. Wooten for the respondents. It was argued for the district surveyor that the building, being occupied partly as a dwelling-house and partly for the business of a licensed victualler, came within the section; and for the publican—(1) that the license applied to the whole of the premises, and made section 74 inapplicable; and (2) that there was a sufficient separate entrance to comply with the section. The facts and arguments are fully reported in *The Times* of the 6th June.

The Court upheld the magistrate's view.

Mr. Justice Day said that there was great difficulty in applying the section to a building of this description. The only matter in which it came within the section was because it was of the requisite size. He could not see that this was "a building used in part for purposes of trade and manufacture and in part as a dwelling-house." A publican carried on his business all through the licensed premises. They were all used in some sort for the entertainment of guests. In addition, there was in this building a staircase leading to an open yard. That staircase was made of fire-resisting material. It was true that the ordinary and more pleasant approach was through the bar; but this yard was an open space which, so far as could be seen, could contain all the inhabitants of the house in safety. At any rate, the learned magistrate's decision must be upheld unless the Court were satisfied that he was wrong. He did not see any sufficient reason for interfering with his construction of the section.

Mr. Justice Lawrence concurred. The section in question did not apply to a case of a public-house such as this. It applied to the more ordinary case of a shop with living-rooms over it. He thought that the magistrate's decision was correct on that point, and it was not necessary to go beyond that. He would not say anything about the approach from the yard, though some advantages might be obtained in case of fire by getting into the yard. He did not approve of the system of indirectly forcing people to make separate entrances to their dwelling-houses when the Act did not expressly make provision for it.

ON THE USE AND VALUE OF COLOUR IN ARCHITECTURE.

BEING THE ESSAY AWARDED THE INSTITUTE SILVER MEDAL 1899.

By HUBERT C. CORLETTE [A.],

OWEN JONES STUDENT 1896; INST. ESSAY MEDALLIST 1899.

Illustrated with Photographic Reproductions of Drawings by the Author.

PART I.

INTRODUCTORY.—As the scope permitted to an essay does not allow too much notice of details, but rather, as the form prescribes, is limited to a general consideration of the subject of which it treats, it must of necessity deal more with a statement of leading principles, combined with a short historical review of the matter proposed, than with a close inquiry into the details of methods employed in practice. Such matters have been ably dealt with in many treatises, which it would be gratuitous to epitomise when they may so easily be consulted by those who would know more of those affairs upon which this thesis may only briefly dwell. I shall merely, in certain cases, point to instances which archaeology shows of the use of colour, and indicate what seems its value in works of architecture. No new theories concerning the use of colour shall be promulgated, for surely practice is the only safe guide and school, based upon observation of the principles discoverable in the works of nature and the experiments of our predecessors in art. The value of colour may not be intrinsically gauged, but it likewise cannot be over-estimated if we regard it as an educative power, an uplifting agent, or a satisfying and pleasing accompaniment in the necessary things of life. For colour, though it has primarily been used by man to supply a want, a real craving in his nature, while it satisfies that demand, gives pleasure to his senses, and arouses aspirations in his being. And when it suggests thoughts to his mind, it leads him on from the consideration of its material existence to a contemplation of its relation to the physical world about him, its influence over him by its simple beauty, its æsthetic power, or the theme it tells. From these he passes on to seek for an interpretation of the spiritual things it may signify.

The present century, though it has witnessed many revivals, has seen some new developments, not alone in the arts, but in literature, in physical science, in speculative and natural philosophy, political and social aims, as well as in those things of faith which are the foundation, and should be the springs, of all human thought and action. Research in every direction began strenuously to inquire into, and carefully to sift, the forthcoming evidence which could tell of origins and elements. Revival had been caused by pre-

ceding decay and consequent revolution. Desire for reformation followed, meeting further revolution in its course. In their quest many found that restoration was the first thing necessary before onward steps could safely be taken. And by this—though some certainly desired it in another sense—was intended a return to first principles, and a shaking of the recesses of our minds free from the accumulated traditions, which had so much clothed, and hidden, sincerity of purpose and truth of method. And though these may not have been the leading motives of all who searched, yet, in the main, those were the objects and desires which moved men, generally, to act.

Among these movements was one that prompted to a study of the past, in the hope of deriving from such a course a better capacity to understand the present and to gauge the probabilities which the future held in its obscurity, so that the best direction should be given to all effort. Another was induced by a natural wish to obtain a better and deeper understanding of the forces of nature, so that they should be more readily commanded for service. There were others not germane to our present purpose. With the former of these two aspects of the one movement arose the science of archaeology and the study of the history of the arts generally and particularly. The object of this endeavour was to discover the part which art had played in the great schools of thought in the past, to show its relation to and influence upon our race, and the different methods which had been pursued, while they were practised, at different periods of time. The latter, in its bearing upon our subject, developed the processes of analysis applied to the phenomena and laws of nature, as an aid to show us the secrets of physical structure and the hidden properties of the material elements. In the study of results, men sought a cause and found a law, and thence deduced principles upon which might be surely founded true science and consistent art. But they found that synthetic methods, applying discovered law, could not educe the same effects as the hidden primal Cause, whether the attempt was made in science or in art. Development, evolution, was a fact whose arrest meant sure decline. And in order to avoid this fate we need accept the principle, and seek to understand the purpose, under the guidance of

which all things move onward to their final manifestation in the beauty of true perfection. The principles and facts of evolution in both these fields we needs must accept, even though we may deny the truth of those theories which would substitute a material for a spiritual cause in all we see. The first aspect to which we have referred attacked the moral and mental view of things, seeking to find their relation to the spiritual; the second studied the physical in an endeavour to apprehend the supernatural. With both of these it will be necessary to deal in the course of this essay.

Napoleon, though his relation to the moral side of some questions may seem remote, was an agent and an effective instrument when he instituted inquiry by his deputies into the hidden lore of that now partially unveiled land which was once the granary of the ancient world, and whose art is the parent of all other which, since its rise and fall, has been developed in the West. Egypt discovered the use of the arts by herself, unaided, it would appear, and initiated principles for their practice and methods for their application which have been but little departed from since her time, for they may still easily be discovered in the designs put forth to-day, and in the motives which have prevailed through a course of some four thousand years. Since the days of the first Napoleon Egyptology has become a distinct branch of scientific archaeology. Its study is of great value as an aid to show the foundations from which art has risen, and upon which she has often fallen in her desire to return to first principles.

But let it be said at once that we should look to the examples of the past as instances of experience for the schooling of the present—distinctly not for specimens to be catalogued as motives for universal adoption, but for ideas which shall be as seeds to germinate in the garden of our imaginations, root themselves in thought, and rise matured as lovely plants ready to put forth a perfect expression of their best selves in flowers of richest colouring. We must for ever despise that custom which goes to any phase of art's many schools and clips here a leaf, and there a flower, or strenuously upholding stem; brings these home to the marts where incapacity resorts in order to seek all things which have been collected, and there cabined and confined, so that they may be ultimately cribbed. There had been a futile attempt to 'revive' the so-called 'classic' forms of Greek and Roman art during the eighteenth century, when revolution seemed Europe's only resort. Then some plunged into the Middle Ages again, and hoped to restore safe traditions and lost ideals by a return to times and conditions alien to their own.

UNITY AND TRADITION.—Let us now take up the thread of tradition as early as we may, and follow its course through history. And in doing so it will be necessary to use the evidence which

archæology affords, as our help, in an endeavour to discover some true principles for guidance in art.

In Egypt the earliest monuments provide examples of the best work which that extraordinary phase of civilisation produced. The inhabitants of the Nile basin were masters, in their time, of the use of those principles in art which prevailed so generally before the Christian era. And by their efforts examples were produced which have proved, if not the actual school for the later arts of the West, at least the original foundation from which those schools have risen. From the ascribed date of the earliest monuments to the latest structures produced under the Ptolemaic and Roman supremacies there is a continuity of tradition which, though in some respects it does not represent development, shows the intimate relation which existed, and must always exist, between the artistic products of one era and another. For the human family is one, though its characteristics vary so widely when it is subject to different conditions, whether of sub-divisions in the race, climatic influences, or the principles of religious faith or political belief, under which these peculiarities have been developed. And this unity is manifested, not only in the physical structure and form of the individual, but also in the essential elements of his being, which art in her own province must express.

This oneness is further shown in art, which, though it is so diversely expressed, indicates, by the language it has used in the past, that there is and can be no division of the human family in its ultimate origins. This the science of archaeology is able to tell us conclusively. These statements will, it is hoped, be sufficiently upheld by what follows in considering one aspect only of art in its relation to and its influence upon man.

GENERAL PRINCIPLES.—Now it would appear, from what history and archaeology teach concerning the customs of those builders and designers who have preceded us, that the use of colour in its relation to architecture may be grouped under two leading propositions.

The first is, that colour may be introduced in buildings by using such materials for the essential structure as have in themselves the colour required for decorating these as works of architecture. This may be called structural decoration.

The second is, that to buildings which have, or have not, been decorated by coloured materials used constructively, coloured or other decoration may be applied. This may be termed decorated construction.

Such a classification as structural and applied decoration is obvious, and may need no further demonstration; but, as truisms are often misapprehended, it may be well to explain what is in this case intended by the terms used.

There is a much-used aphorism which says, "decorate construction, never construct decoration." Now the value of any form of antithesis

depends not alone upon terseness and an apparent felicity of expression. Its merit is but partial when, as in this case, there is a risk of misinterpretation.

Since the principles to be discovered in nature should ever be the foundation of all practice in art, let us see what happens there to support what is more true—that we should, in building, decorate construction if we would have it architecture. And, having done, or in doing this, we may further upon the fabric construct a scheme of decoration. It will, however, in the course of this essay be necessary always to refer primarily to the use of colour as a means of decoration, and to sculpture, carving, and other methods only as they affect the main subject.

"Construction" implies design, and "decoration" cannot be without design. A disordered chaos either of them may be if you will, a product of human misconception. Law—that is, design—rules among the elements of nature, but so-called art, which in its being shows no sign of artifice, is anarchy, and never can be beautiful. Does a plant not grow according to some ordered scheme? Does it not, when by the secret force of life its structure rises from the hidden seed, become clothed with colour which is an integral part of its still growing frame? The bark of any tree shows that this is true. The very vessels which carry the living sap up to its nostril-leaves occupy the place designed for them, perform the functions allotted them, and are beautiful in colour and in form. The nourishment these nostrils gather colours them, and, while they help to complete the building begun below, they give it sustenance and life, so that the more lovely flowers may come to brighten in the sun, and form new seed to carry on their life.

Is there no decoration in the structure of a leaf? Is there no structure in the decoration of a flower? Undeniably there is. The very colour of each thing has structure and design within itself, however large it be, however small.

But it is necessary to observe that the decoration, the beautifying of things in nature, does not stand first in order, but depends upon, and is the outcome of, perfect structure. It is, at the same time, not supplementary, as is sometimes supposed in works of art, but complementary to that of which it is the final flower, the signal embellishment. The figured material symbol speaks by its silent loveliness high themes which, alone, the stem could never tell.

In visible art, as apparent in nature, all things are material, but these should be used as aids to our apprehension of the mental and spiritual. The means by which one is expressed and the other lives and acts are physical; but one is, and the other should be, ultimately designed for the interpretation of the attributes of God and man as they may be discovered in the works of each. And as

nature is the visible evidence of the acting mind of the Creator, so art, based upon this, should be a sign of the working mind of man endeavouring to express his ideal aspirations. For design in art is a creation of the creature, born of that design in nature which is a manifestation of the Creator.

Structure and decoration both involve design—that is, construction, artifice, device. The latter follows the former; it is an integral part of it, and in its highest aspects may be the means of interpreting the deeper significance of every material form, every created symbol.

"Mere decoration!" some have said, as if in sufferance of an unessential thing. "Mere" decoration! Yes, if the so-called decoration is no ornament to the thing it clothes. But the phrase is too often a resort in which utilitarian dullness takes refuge as a convenient sanctuary. Does not decoration in the works of nature place the seal of His perfection upon all the Creator's deeds? Each stage of building He completes as He proceeds, and by that stage provides the means which shall sustain the others which ensue. The seed, the germ, the one foundation of a plant, the material holder of the elements upon which the mystery of life may act, by the processes of nature, or, by the effort of directed human thought in the designs of art—this for its purpose is complete. And so it is with the stem, the branch, the twig, the leaf. Each is conceived, designed, with truth, built with beauty; and upon these all the stamp, the sign of loveliness, is set when every bud has blossomed into flower.

The parallel between the principles in nature and those which should rule in the processes of art is surely obvious, and needs no further exposition to state the importance of the place it should occupy in our minds. Once seen and once accepted it forms the surest base from which we may deduce sound principles to guide us in design.

EGYPT.—To Egypt we must necessarily always refer in any attempt to review the growth and progress of decorative, or any other branch of art. The architecture which her extraordinary civilisation produced has long been the acknowledged origin of that which has followed since her fall; and our present aim is to see what use, in that architecture, she made of colour. This will show its value in her regard.

We are familiar with the Nile valley and its inhabitants primarily from the constant reference to them in the records of the Old and New Testament Scriptures. But to understand something of their use of colour in architecture, and the high esteem in which it was held by them in all their decorative art, it is advisable for us to know a little of those customs which helped to produce the nation. These were fully set forth upon the monuments they have left behind, being evidences

not only of their skill as engineers, builders, designers, but as representative of their religious aspirations, their political system, and their private social habits.

However, the recapitulation of what history has to say upon such topics is beyond the scope of this essay. At the same time, it may be well to observe that religious faith and political ideas have obviously at all times been important factors in determining the characteristics of a nation's artistic productions. This was not more particularly so with the Egyptians than other races. But with them these guiding powers had great influence. The best works of art in all ages are those which have been raised by man in honour, or in fear, of the deity or deities it was his custom to worship or his privilege to know. Most of the pre-Christian forms of faith were polytheistic, the most notable exception being, of course, that found in the Jewish nation. And this faith, whatever its kind, was represented by the arts so long as its vitality lasted and its votaries were sincere.

The intimate relation that existed between the rulers of Egypt and the priesthood, the highest caste among their subjects, indicates a cause for the erection of so many tombs and temples, whose structure must always be a subject of wonder, and their decoration one of surprise. It was no doubt part of the national policy to support and protect the faith of the people, and to guide it as was thought best, for the king's council of advisers was composed of the most learned amongst the priests. It was their belief that without religion no state could stand, and that, if one was lost and the other survived, it would be far better for man if that which upheld his faith remained; for, said they, religion without the state may stand, but the latter without the former must ultimately fail. This, no doubt, is the reason why we find buildings, most wonderfully decorated, raised in different parts of the land, to one or other of the very numerous gods whom they recognised. It was upon these edifices of all kinds that they, with the hieroglyphic characters, inscribed their history and confessed their faith, indicated their accurate powers of observation, and recorded, by the examples they left, the fact that they were perfect masters of the art of conventional design, and the use of colour as an integral part of any architectural product. But their use of colour was not the mere satisfaction of an æsthetic fancy only. It was used to complete their work so as to render the symbols of their language and faith more intelligible; to emphasise the facts which were to be read and understood by those who gazed at the things representing the story of their military expeditions and domestic customs. The prevailing spirit apparent in all Egyptian art is one of grandeur and magnificence, an evidence of the mightiness

of force, a signal of tremendous power, calculated to impress and satisfy the sensuous nature of those who caused its being.

It is perhaps unnecessary to remark that the works of architecture were large in conception, bold in execution, and broad in all their treatment. The execution of detail was left to the inscribers, who covered every wall, every cornice, every column and ceiling, architrave and cap, floor and dado, with a rich profusion of varicoloured signs. There were those decipherable as language, all carefully disposed with a strict regard to the decorative result, in their appearance as one whole scheme, when they should be completed. Others pictured the deeds of war and the arts and habits of peace. But further, there were those which, as symbols, revealed by sign the mysteries of their faith. And these all were coloured, for the Egyptian painted everything.

The positions in which colour was used by them were chosen with but little regard for the effect that climate might have upon their pigments, whether internally or externally applied, as the media used were of a nature so durable that the place they occupied mattered little. And when they used coloured material structurally, they were still less influenced by the same matter, which, in more northern climes, becomes an important and ruling factor in the processes of the arts.

With regard to their use of coloured material in decoration as a necessary part of the physical structure, we have not seen much evidence of their having developed this method to any finished degree. This is perhaps little to be wondered at, since the principle upon which their ornamentation was based was, so largely, that of application. And the fact that the use of such decoration to them was first, no doubt, to convey some definite and intelligible impression, doubtless became the origin of such a system. But it is well known that they, like most peoples, primitive or civilised, used sometimes a purely conventional, unrepresentative, and geometric form as a basis of design. Further, there were other elements upon which their decoration was based, and these were derived from nature for use in art either as forms solely decorative, or as a means of representing a connected theme which expressed a single ruling idea. Nature they did not copy; but they did study the methods, the principles of law which, in the works of nature, were visible on every hand. And, again, like all arts which have ever attempted to express the spiritual and ideal conceptions of mankind, they called in the facts, the forms and characteristics, of natural life, to state by symbol what they apprehended of things spiritual and could not sufficiently describe by other means.

The use by the Egyptians of geometric combinations in colour, line, and form, has left its impress on all succeeding arts. In the art of Egypt the use and value of colour in architecture

is apparent in every direction. The great masses of the temple or other buildings were covered with applied colour. This decoration was nearly always symbolic in the main, though it is of course not necessary to find a hidden sign in every isolated band of plain or chequered lines. These were used as a means to bind the several parts of a composition into one whole. And whether they were mere lines laid together with a harmonious relation of varied colour, or treated as contrasting tones, shades, and hues, they were always arranged with much care, and a regard for the general decorative effect. Nevertheless, some of these composite borders in colour have told tales of their own origin and their evident connection with later carved and painted forms, to those who have carefully investigated their characteristics, and compared these with other objects discovered by archaeology. A desire to adorn himself, and in some way to decorate all objects associated with his everyday life, seems to have been an inborn characteristic of primitive man; and where instinct and observation were his chief, if not his only guide, man has, with a native simplicity, always contrived ingeniously, and often beautifully, to exercise his growing skill in the arts. Though scratches with flints and daubings with coloured muds, or burning out, may have been an early means to satisfy his craving to create, to form, to make, to design, to realise the conceptions of his imagination by the aid of his mind guiding his heart and hand, he was not long confined to such primitive usages.

But prehistoric man, though exceedingly interesting to the lover of specimens, concerns us little here. We find some of the earliest historic

monuments in the works which Egyptology has discovered, and these all tell us that their builders



FIG. 1.—Wall Decoration, 12th century. Painted on plaster over stone.
The Abbey Church of S. Savin, near Poitiers.

were pre-eminently a body of decorators, and that the decorations they used were always carefully designed and treated with colour, the oldest

examples being invariably the best that have been found. The Egyptian used his hieroglyphic inscriptions, his writing, which was pictorial and symbolic in itself, as a decoration. He cut it all over his buildings, and filled the incisions with coloured matter. But he subjected this to an ordered scheme of design, and made these signs serve the purpose of a dado, a capping band, or a frieze, while they also told a tale of conquest or commemorated some mystic ceremonial. With this written story he mingled great scenes of peace or war chiselled in the stone or granite face of pylon, temple, and tomb, and brilliantly coloured them. He used colour as an aid to tell his history, to vindicate his rights, to express his faith, with its great vain hopes and superstitious fears. He pictured his religious rites in colour upon his walls, he showed all men that his gods were beasts and birds, that he worshipped animalism and revelled in the satisfaction of sense, especially when he debased his art and dishonoured himself by representing the hideous orgies of some drunken festival. Such was the Egyptian's use of colour, and so did he value it, deeming it essential to the fit and proper representation of all he desired to tell of life as he knew, or supposed he knew it past, present, and to come. By his art he tells us he believed, like ourselves, in resurrection and a future life; though by the same means he tells us that tradition, estranged from true sources of revelation, led him, as it has others, to false deductions, and speculative misrepresentations of these deep truths.

The elements of Egyptian decorative art—colour being always understood as never absent—were generally derived from three or four sources, from geometric forms, from nature, from structure, from the uses of symbolism. The line was used either as a simple and elementary border or in combinations, such as were derived from the zigzag, which developed into innumerable varieties of design. In later times, the same element became the waved line, and so provided still other schemes of combination.

This use of the line as an article for adoption in ornamentation is universal. We shall see it again in the pavements and wall patterns of the Byzantine, Saracenic, and Gothic periods, when geometric combinations of line in squares, triangles, and circles, and other curves having coloured bands disposed between them, became a much-favoured method of introducing relief and variety into architecture.

The spiral was another form which, like the scroll, has been, and still is, the foundation of so much decorative art, whether carved or in colour. So much, indeed, that appeared among the Egyptians as painted work applied to a hard material was carved out of that material by later schools, and the ground upon which the carving stood was often coloured. The cut work itself was

sometimes also coloured, but frequently left as from the chisel alone, or else touched only in its leading lines with gilding and a little colour, allowing some of the native material to be seen as well. The painted spiral is always pointed to as the original of the painted and cut fret of Greek and later times. The line was used in the way already indicated, as the monuments themselves, or any of the numerous treatises dealing with their peculiarities, show. It was made also to form a boundary confining a set of hieroglyphs or as a band upon the columns at the base, neck, or cap. Large surfaces of wall having either inscriptions alone, or with figure subjects upon them also, were broken into panel forms by banded groups of lines of red, blue, yellow, green, white, and black in different combinations. The lines or borders were either simple flat colours laid side by side; or else, a dado band or cornice used as a horizontal division, was a flat ground of one colour upon which other decoration was superposed with or without edgings to separate the applied design from the ground it covered.

Beside the plain straight unvaried line, and its early development the zigzag, there were other customary ways of using geometric form in decoration by colour. The most important is, perhaps, that which introduced the spiral. This idea has, since the earliest times, been the foundation, the principle of structure upon which some of the finest designs have been made. The Egyptians themselves developed it when once it came into favour, and added to the simple spiral line, or spiral bounding lines within which colour was introduced, the various natural forms they were accustomed to use, such as the palm, the papyrus, and the lotus. The form was generally used in Egypt as a decoration painted upon a level surface, and was much adopted as a ceiling pattern.

With the spiral, fret, zigzag, and waving line the simple spot of different forms and colours was often introduced. Where the continuous or other spiral was not chosen, a simpler pattern of diapers or chequers was adopted. It was derived apparently from the patterns made by plaited or woven objects, such as basket-work of straw or reeds.

Hangings and dress fabrics suggested other forms derived from needlework. And though it is said that the Egyptians did not resort to the compass they certainly used the circle, worked, no doubt, from a centre with a string. It is peculiar that, as archaeologists tell us, the art of Egypt never took as a motive the regular hexagonal form, with its consequent equilateral triangle, so easily derived from the circle; a common type in Assyrian decoration.

To nature the Egyptians went direct for their best ideas in design. This was the fount from which they derived their highest inspirations, and it was in the forms of nature that they found the symbols by which alone they could signify the

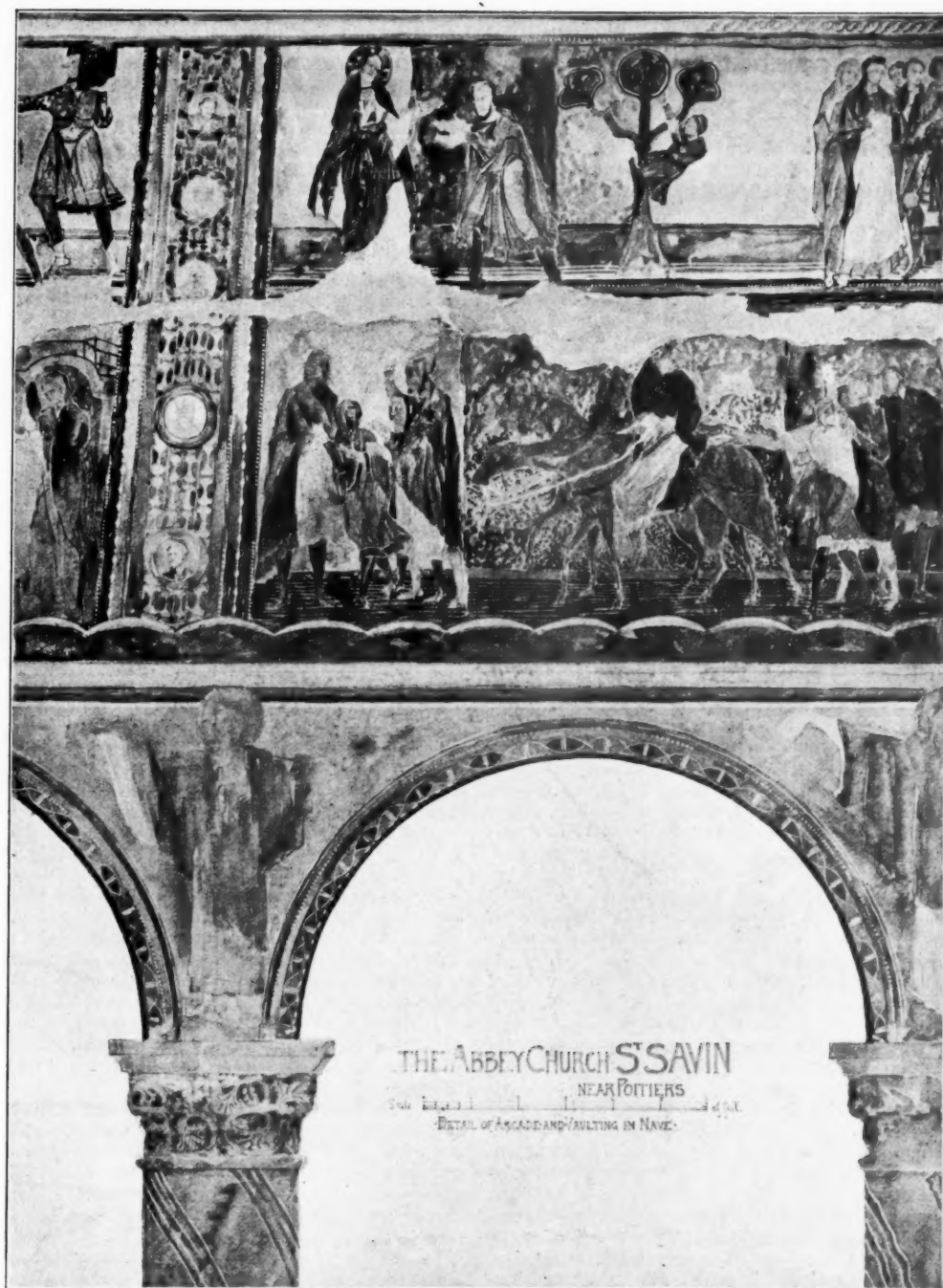


FIG. 2.—Painted Decoration, 12th century. On plaster over stone. Detail of the arcade and barrel vault of the nave. The Abbey Church of S. Savin, near Poitiers.

mysteries of the supernatural. They adopted, as a motive for ornament, the simple things with which their observant minds were familiar. The human figure was used everywhere. Their way of dealing with it was certainly most conventional, sometimes arbitrary, but always decorative. They made it large if it was to be the impressive and leading feature in a scheme of descriptive ornamentation; if insignificant, they made it so by its relation to, and its comparison with, figures or other objects. The human form was always in the earliest examples admirably though decoratively drawn. The line of incision or relief always grasped the characteristic forms and the related proportions of parts to the whole body, which was invariably shown in profile, with the eye as if seen in the full face. The work was always vigorous, full of living action, and seldom dull, though to our eyes it is rather archaic. The Egyptian methods of introducing the figure in decoration are useful to those who study them, as they well serve to indicate how much may be told in ornament by simple means. These decorations told their own tale simply, emphatically, and directly. The theme presented was always clearly shown, though to understand the thought, the mind discoverable in the ornament, the onlooker was expected to use his own capacities and think, observe, or recollect. If it was no definite subject that was to be seen, but only some pleasing combinations of colour and form of line, the satisfaction conveyed was one which gave pleasure more to the senses than to the mind. And it was to these that all the art of Egypt most directly appealed, whether it was architecture, painting, sculpture, or the related handicrafts. It pleased the physical ambitions in them, because it manifested their own power over inanimate things. It impressed them with the littleness of themselves who made these things, and yet with their own greatness who could offer such works to their deities, whose powers were still mightier than their own. Deity was to them chiefly the mastership of the physical laws of the material world, which they used thus in its honour. But though their art most directly appealed to the senses, it claimed also the attention of their minds, and so awoke intelligence and aroused new thought. It pleased them first, taught them next, and finally uplifted them according to its power and their response to its appeal.

These Egyptians, the fathers of an original development in the arts, like the mediævalists, did not confine themselves to a few simple conventional forms originally, perhaps, derived from nature. They made their own translations from the natural originals, and so were able to interpret them in a language of expression in art which was characteristically their own. The more important motives were derived from some dozen different objects.

The lotus plant and flower, in all stages of its growth suggested, by itself, innumerable schemes of design in line, form, and colour. In decorative painting nothing of importance was done without it. And the familiar anthemion of Greek work is supposed to have been derived from certain early representations of the lotus. Archaeology teaches that the suggestions which Hellenic art took from that of Egypt were derived first from surface-painted and incised decoration, and that this decoration was, by the later Greek school, carved in relief and so painted.

The papyrus, like the lotus, also suggested motives for cut and painted work, and as well the palm, the vine and its fruit, the thistle, and convolvulus. Since among birds the ibex was so revered, it was natural that in them suggestions for conventional decoration should be found. Birds, beasts, and fishes, variously coloured, frequently appear in Egyptian art as symbols or as parts of some descriptive or didactic representation. The feathers of birds—and the whole wing, as we shall see when the symbolic idea is considered—played a great part in giving thoughts to these designers.

The simple disposition of the feather upon the living bird, quite apart from the indication of possible colour treatments it may have conveyed, provided many ideas for patterns. Designs derived from feathers were painted on wooden or stone columns, and with slight carving they were used in the coloured decoration of some capitals.

To the Egyptians the jewel stars, whose radiating points of gold like arms of light fingered the blue vault of heaven, gave many suggestions. One, of which they made much use, was that of painting their ceilings like the heavens that covered them. But when they did so they put the glimmering five-pointed stars upon the blue of an evening sky, not upon the lighter tint seen by the burning sun's hot rays. It was the softened blue displayed by the risen moon that they preferred. A certain idea of consistency prevailed, no doubt, in guiding them in their selection. A desire for comfort and release from the out-door glare prescribed a deep blue field as being not only pleasant, from the associations which thought would suggest, but also, because the colour blue is cool. It is more allied to grey and black than the other primaries, red and yellow.

Structural decoration in colour, of the kind we understand by such a term, was, apparently, not frequently practised by the Egyptians as a definite branch of architecture. They used coloured, glazed, and decorated brickwork, but not to the same extent as the peoples of the Assyrian and Babylonian era, whose work we shall briefly consider presently. But they derived much matter for application in decoration from the suggestions conveyed to them by the structural forms both in nature and the primitive methods of building in

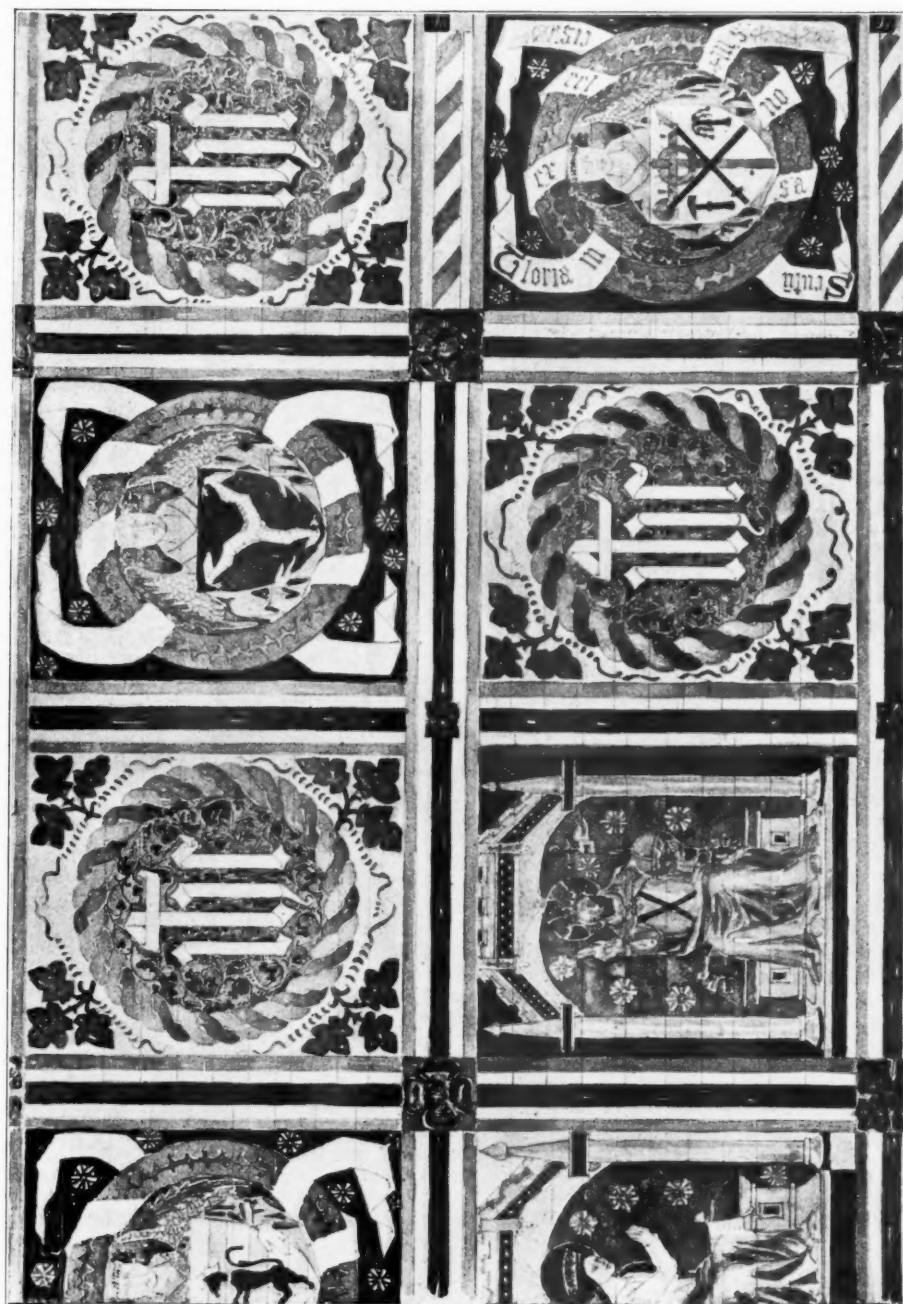


FIG. 3.—Decoration painted on wood, late 11th century. From the flat ceiling of the choir, St. Alban's Abbey.

wood and stone. As is well known, the lintel, and cross-beams resting on it, are supposed to suggest the origin of some motives in Egyptian and Greek ornament. And no doubt there is much truth in the surmise. However this may have been, we know that framing in wood was by them translated into stone forms and painted. This was decoration suggested by forms of structure, but it was not structural decoration in our sense of the term. Panelling in brickwork, glazed or plain, was used in Egypt as in Babylonia.

Everything in Egyptian art was in some way coloured, as part of a scheme of polychromatic decoration. And they painted not merely the chief features of their building construction, but often represented upon these features the sources from which, apparently, they themselves were originally borrowed. Columns, caps, bases, cornices, doorways, the great lintels and the panelling these made as they passed from cap to cap to form the flat ceilings—all were brilliantly coloured. And this colouring was not dull and of low tones. Throughout all their work they used the primaries red, yellow, and blue profusely. White and black were used to outline a design to separate colour from colour, and to emphasise the different parts. And the tones of these primaries, in the best period of their art, most nearly approached those of the prism. Lighter or darker tones were adopted as they wished in different stations, but brightness of colour was the rule, not the exception. Had lighter hues been used they would have been almost invisible in the strong light of a tropic sun, and also would not have been so long proof against the sun's destroying power over applied colour. Lower tones were probably discarded because they would be so obviously out of scale with the familiar brilliance of the usual outdoor scenes. It was an unwritten law of harmony which led them instinctively to adopt those colours most suited to their geographical position, and most satisfying to their own nature, passionate and intense as it was.

Whether it was the custom of the Egyptians to use colour itself, irrespective of the things it represented, as a symbolic means of conveying ideas, is not decidedly known. But that they used symbols derived from the forms supplied by the phenomena of nature is certain. There is probably not one monument they ever built which does not carry a statement, or a confession of faith, quite irrespective of the hieroglyphic system and other conventional representations of incidents of their history, domestic, civil, or religious. And it was by these particular signs that they expressed their faith in things unseen. It would be interesting to know whether, in painting these symbols, they used any regular system of colouring. If they did, it might be possible to deduce the meaning, if there was one, which they attached to colour itself as a symbol.

As all language is an expression of mind by the use of symbol, so the presence of symbol should ever be a sign of thought. Words, the symbols adopted by man in speech to state his personality, are perhaps sometimes used by those who have but little understanding of their significance. There are, however, many signs that voice the thoughts of man in art which are enigmas now to many of us. They have become pretty motives of unmeaning ornament, to those who have culled them from the dictionary of present traditions and past experience. When the Egyptian wished to express a volume of thought by one mere sign he used the accepted symbols of his faith, knowing, as he did so, what was the import of the sign. And these, quite apart from the written hieroglyphs and the scenic representations on the monuments, were to be seen on every hand as primal motives in any decorative scheme in colour. We shall see that Christian art, far more than that of Greece and Rome, practised the same method to teach finer ideals by media much more beautiful.

Except in the smaller buildings, where it has been applied often for decorative purposes alone, design in colour has been used, always in periods of high artistic development, as a means of speech by symbol. In the *uraeus* the Egyptian saw death as a power of royalty. This rested with his king, and so, where the cause of justice was, there was the sign. It was used as a decoration round columns, as a motive on cornices and in other positions. Other symbols, such as the *uraeus* and globe, and these with two wings, the scarab a symbol of creation, the vulture, the lion, were the chief ones they used. The lion was a symbol of royalty and the power to rule. The bull *Apis*, the god most sacred of all their deities, was their chief protector, for it was by his kindness and care that they were preserved. In the vulture they saw a means of protection, and with open wings it figured overhead upon their ceilings.

Man, also, as one who possessed the attributes of deity, was represented in their scheme of coloured and carved symbol among the creatures they chose to deify. It was barely a compliment to their own faculties that he should be assigned a place in a hierarchy of gods with bulls, cats, and birds, as his associates. But this is no surprise, since their decoration alone is sufficient to show that animalism and the senses led their ideals. Nevertheless, many of these things, beautiful in themselves as conventional designs drawn from the resources supplied by the natural phenomena with which they were acquainted, were full also of a significant beauty of thought. And this was to be read in cut and painted forms wherever the eye might wander.

The use of colour, as well as the treatment of form, in the decorative work of Egypt was always conventional. Colour and form they found in

nature. They took leading principles, essential features, and subjected them to the skill of their own designing power. What they coloured was always first well conceived and carefully drawn. And, as we have intimated, and now repeat, the

decoration of architectural subjects applies with equal force to furniture, fabrics, and other accessories. These all were either painted or woven in bright colour. Perhaps the important points to be observed in Egyptian colour work are its in-



FIG. 4.—Structural and Applied Decoration, 12th century. In coloured marbles and mosaic. S. Miniato al Monte, Florence.

colours they used were few, being limited to varied tones, shades, and hues of red, yellow or gold, blue, white or silver, and black. White found much favour with them as a ground for applied colour. Purples and browns were not used in decoration until the later and Ptolemaic periods.

What has been stated concerning the colour

variable use of flat, and not shaded tints, applied to simple, well-delineated forms; and also that their palette was restricted to the primaries.

We have dwelt thus long upon the use in Egypt of design in colour, because it was an original and not a derived art, and further, because those leading principles which were with them the

fundamental motives of all artistic expression were also, with few exceptions, those of the later nations who strove to express their thoughts and aims by similar means. It will therefore be unnecessary to restate these facts when we consider some other developments in the use of colour in architecture as the voice of humanity in art.

Building is the body which fulfils its purpose and highest use only when, as architecture, its mind and spirit speaks by the language of decoration in colour and in form. It then may tell the history of those whose refuge is within its sheltering walls, whose designs, revealed upon it, are able to show to us the heart of man as it has been expressed in the monuments he has raised for a public service to his Creator, for a civil encouragement of industry and patriotism, and for his private comfort and pleasure.

BABYLONIA, ASSYRIA, AND PERSIA.—In passing on now from our consideration of Egyptian colour decoration we meet three important Asiatic schools, those of Babylonia, Assyria, and Persia. With these, elements similar to those we found in Egypt had prevailed. Babylon, situated as it was upon the Euphrates, some three hundred miles south-east of Nineveh, had developed the brick-making industry and cultivated the use of glazed and coloured brickwork. This method of introducing colour into their architecture was a means of producing beautiful effects in a material able to withstand the wear of exposure if this were confined to the glazed surfaces alone. But associated as it was with other and weaker brick, time has resolved all their monuments to shapeless mounds, some to dust. Out of these heaps of magnificence collectors have unearthed many interesting and beautiful specimens of decorative skill.

Situate upon a plain far from any mountains from which marbles and stone might have come, the Babylonians were compelled to use the material accessible to them. Like the decorators of Egypt, Greece, and Rome, those of Babylonia had honoured their gods by the best offerings their arts could produce. Upon the walls of the palaces of Babylon figures of men and animals had been painted, or were represented by brickwork in coloured enamel or glaze. The colours they had used were a brilliant blue, red, and deep rich yellow, as well as white and black.

The relics discovered at Nineveh on the Tigris are representative of the use of colour by Assyria. Again the use of colour in architecture was to emphasise and add beauty to decorations which expressed the faith, policy, history, and habits of the nation. All their work was essentially conventional and decorative. Some motives were borrowed directly, no doubt, from Egyptian sources, thus indicating the political relations that had subsisted between these nations. But this influence was not so great as that exercised upon more purely Persian decoration, when Cambyses

not only imported artists from Egypt, but allowed the symbols of Egyptian belief to be represented by these aliens upon the buildings of their conquerors. The Assyrians had painted, gilded, or silvered everything, and at Persepolis the same custom was followed. All things architectural had been delicately and carefully decorated with colours, especially in the interiors of the buildings.

GREECE.—The intellect of Greece took up the course of art after it had fallen by Egypt's decay. Under Pericles she reached the summit of her capacity, and through the Alexandrian period followed to her decline, when Rome acquired the then accepted world, and bade the conquered nations minister to her conceits and serve her wants where her own skill could not avail.

Greece borrowed ideas from forms which had already been conventionalised by Egypt, Babylonia, and Assyria. Only in a few instances did she drink directly from the cup of nature's offering. But when she did she drank deeply, and made ideals, in her own field, of all her works. Her people, with their keener faculties of mind and higher perceptions of beauty in form and colour, took up the interpretations of nature's originals which they found then existing, and made perfect what they had found incomplete. And the cause of all her finer perceptions of proportion, form, and colour is to be found, no doubt, in the careful study of the human form and the keen appreciation of its beauties.

Greek architects used the colour with which their works were decorated, to emphasise leading features, and, to give a fuller expression to such details as they wished to display. And they did this not according to any arbitrary rules, as some would have us believe; they were not blind, unthinking slaves who followed custom because they were afraid of the troubles and responsibility that creative design imposed; but they did it with that freedom which they had acquired by the observation of nature's highest principles. These they accepted as their guide in art, whom they best served when they most obeyed those laws alone. Smaller minds than their own have attributed to them a theoretic system as the basis of all their power; but they, with all master-workers in the arts, expounded their theory by practice, and did not express all their practice solely by the coinage of logical propositions. Thus it is that we have examples still with us to show what they had done. To the Greeks, the Doric forms were not so severe as was once supposed. For we now know that they had been relieved from the austerity of all uncoloured things by the application of coloured decoration.

We are no longer troubled with the once exciting question which disturbed the prejudice, and what there was of imagination, in the minds of archaeologists early in this century. In addition to the written evidences of those, like Pausanias,



FIG. 5.—Structural and Applied Decoration, 12th and 13th century. In mosaic and coloured marbles. S. Miniato al Monte, Florence.

who saw Athens in at least some of its early splendour, the monuments themselves have told us, by no uncertain statements, that they were treated originally with complete and beautiful schemes of polychromatic decoration. On buildings still remaining in the Sicilian colonies of Greece plain indications of a similar treatment have been found. And we are told that Panæus, a brother of Phidias, was a painter who decorated in colour part of the temple of Jupiter at Olympia; but the documentary evidence is trifling compared with the more reliable indications already mentioned.

The lack of much written testimony, concerning the use of colour in architecture as it was practised by the Greeks, is thought by some to be an argument showing that its use was general; and also that those who described the monuments were thus acquitted of any need to explain what was obvious to their contemporaries. However, we must let the buildings tell their own tale. And for this purpose it must suffice if we refer only to some in Athens itself, where the best products of Greek art were to be found. These were built chiefly with ivory-white marble from Attica, used in the work as definite functional parts of the structure, not applied only as a superficial veneer.

The temple of Theseus, it is supposed, was once partly covered with a thin coating of stucco, for some surfaces have been treated with a point, so as to make the plaster coat fast to the walls. Whatever the finished surface was, colour had been applied to it. The figures in relief on the frieze of the entablature inside the peristyle had been painted, and the ground on which they were cut was blue. The various fascias had been decorated with conventional patterns in red on the white ground. Red, green, and blue, with some use of gold, were the chief colours used. The ceiling of the porticoes had a blue ground, and on it were glittering stars of gold. Some of the outside entablature was also coloured, the untouched part being the plain white ground of the marble. The soffits of the mutules in the cornice had been painted blue, and out of this ground the guttæ stood as spots of gold.

The Parthenon presented another example of the use of colour applied to marble externally. Whether the reliefs of the Panathenaic procession had been coloured we cannot say, but the ground of the frieze apparently was blue. The outer entablature, like that at the temple of Theseus, had been coloured on some of its members, but gilding was used more freely. The fasciæ generally were painted with the running honeysuckle or palm designs, and the ovolo mould had been covered with what we generally call the egg-and-tongue ornament. The running ornaments seem to have been done in red. Upon the architraves of many of the temples gilt shields had been placed, so that the plainness of this member was varied by

the amount of relief these applied objects would afford.

In studying what archaeology has discovered about Greek methods of using colour in architecture, we are struck with the careful restraint under which they evidently placed themselves in adopting this tempting means of adding emphasis to architectural forms. Like the Egyptians, they worked under climatic conditions favourable to the free use of applied colour externally. But they used in structure valuable material which of itself formed a decoration in colour which they, wisely, did not destroy. They were careful not to allow a delight in things beautiful to lead them into any useless and unreasonable profusion by its indulgence. Their art was essentially rational. And by it they showed, in their great admiration of the human form, that they contemplated with pleasure their own being; for the beauty and intellectual power of humanity was the chief object and motive of all their artistic expression.

The Greek mind during the Periclean age was evidently somewhat severe but refined in its tastes, for we do not find much evidence to show that they used coloured marbles in the manner that was developed by the Imperial Roman school. The earliest marble pavements, such as those which have been found in Greece, were plain large slabs of white marble, but it is known that more decorative tessellated pavements were also designed by them.

The remains of work in Sicily show us that often, especially in their colonies, the Greeks had built their structure of rough materials, and finished the architectural forms in a moulded and modelled stucco. This they had painted in the same manner as they had decorated the marble in Athens. In Sicily, too, the grounds to sculpture in relief were often red.

It is not definitely known how much the Greeks used colour for subject-work in fresco, but examples of painted decoration showing figures in action, after the manner of the Parthenon frieze, have been found, though in a rather fragmentary condition.

The Ionic temples had been coloured in much the same way as those Doric ones which we have named. But in the later work it would appear that much which had been painted decoration was cut and painted as well, or allowed to remain without definite colour beside that which the marble and the lights and shades of a relief could give. This was more the custom of the Alexandrian period, but it does not seem a sufficient explanation of the surprise and fear expressed by Pliny when he observed that the Romans were "beginning" actually to paint the "stones," or marble, of their buildings. He says the custom was begun when Claudius was emperor, and that the imitation of marbles by coats of coloured lime was practised in the time of Nero. Under

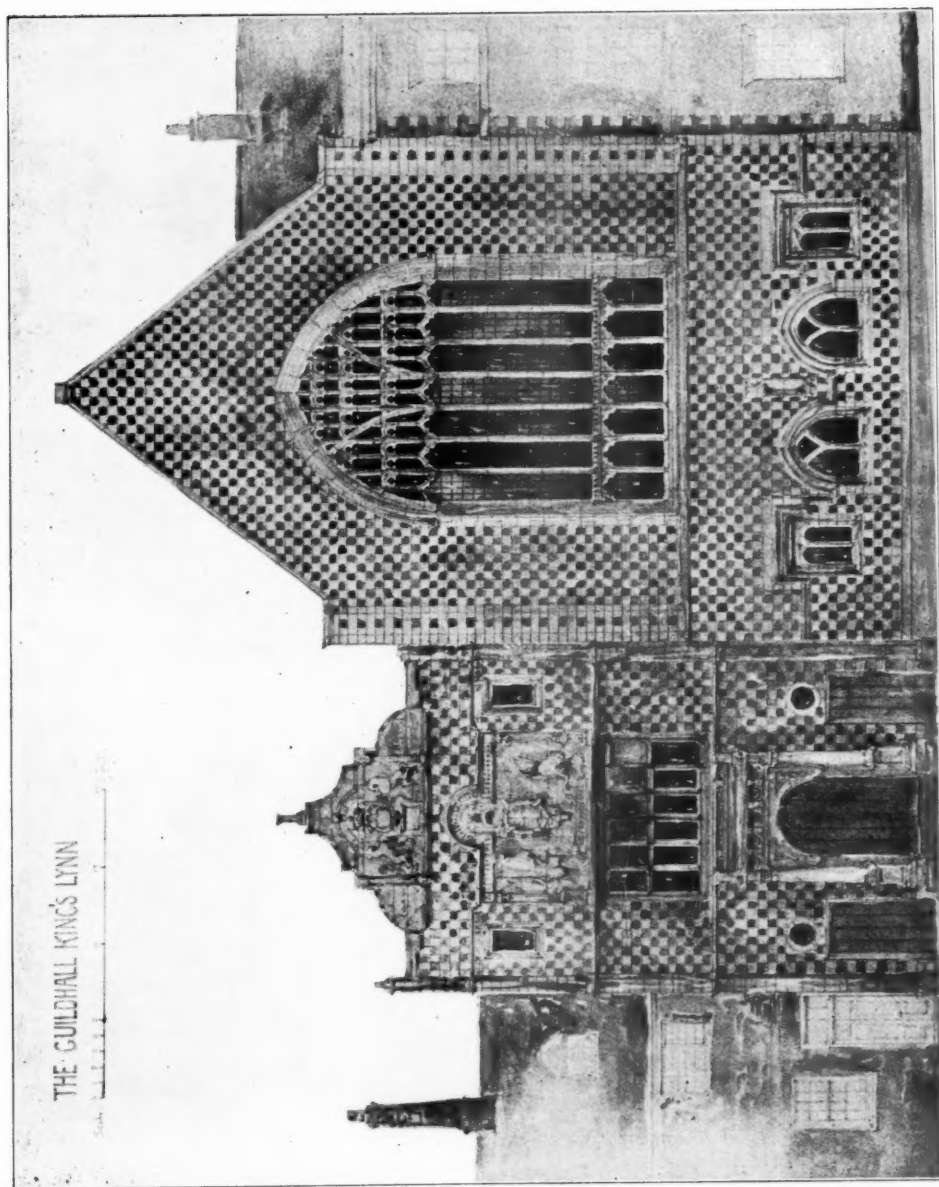


FIG. 6.—Structural Decoration, 15th and 17th centuries. In flints and stonework. The Guildhall, King's Lynn.

the rule of the latter we should not be surprised to find hypocrisy studied as a definite branch of art.

GRÆCO-ROMAN.—Some reference has already, incidentally, been made to the use, by the Græco-Roman designers, of colour in relation to architecture. Much of the best work that they had done was destroyed by the raid made by the new-born Christian art upon the quarries which the works of old Rome provided. For such they were evidently considered to be by all those who wished to build a church, after Constantine had made such depredations permissible. Nevertheless, we know well that the Romans, by aid of Greek skill, had done many beautiful things with colour. But they used ideas of application to so large an extent that they were the means of establishing a false principle in art. And this was embodied in their practice of taking the rationally developed features of Greek architecture, and fastening them on, or building them in, as parts of their own structures. They thus attempted to make architecture of building, without the expenditure of that thought and skill which was necessary in order to develop, from the essentials of their own buildings, that which was required to complete them as works of artistic design. In their bridges and aqueducts, and such other feats of engineering skill, they frequently attained to that at which they had not so much aimed as in their civil and palatial compilations.

But in decoration they had made that perfectly legitimate use of materials which we shall find was so completely adopted by the Byzantines in St. Sophia and other churches in the East, as well as in later works of a similar type. We refer to the application of thin slabs of marble, coloured and plain, to walls of another and rougher material.

Pavements they not only made at home, but in every colony they left examples. Indeed, it is recorded, so fond were they of a good pavement, that mosaic ones were taken by some Roman leaders for use during their campaigns.

Deriving from Greece, among other things, the use of marble as paving, whether in slabs, inlay, or mosaic, the Romans also took from the same source their ideas concerning the use of colour as painted decoration. The Greeks were, in fact, the people from among whom Rome sought out her artists. But it was not until Egypt was her tributary that she so much indulged her love of luxury by a use of the precious marbles which she was able then to procure. By the same political event a great impetus had been given to the use of glass as a coloured material.

For examples of the painted decoration of Imperial Rome we must largely draw from such information as Pompeii and Herculaneum, more especially, may afford. It is from these that we may learn not only what Roman policy and pleasure had adopted, but also in a degree that which Hellenic refinement had effected in the home as essential to a full satisfaction of their intellectual subtlety and artistic caprice.

All of this Pompeian painting is interesting archaeologically; some of it is good decoratively, but most of it is bad in every way. It carries with it too much of the luxurious Roman depravity to be truly beautiful, but at the same time it shows us, in nearly all instances, that the decoration was done in flat tints of colour, excepting where they gave detailed representations of the human form, birds, and beasts. But the work was grotesque without being amusing; and when it introduced such a motive as a full-grown bull, standing erect and ready for the fray, with no better support for its ferocity than the delicately painted tendrils of a weakling scroll of vines, then it became ridiculous.

But illustrations of painted decoration, characteristic of this period, may often be seen in which there is fine design, excellent drawing, and good colour, with but little extravagance in the motives employed. The chief grounds adopted were brilliant red, blue, or gold. Green was sometimes used for the same purpose, and also black and white.

(To be continued.)

